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THE  
ARTIST'S REPOSITORY  
*AND*  
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*exhibiting the*  
PRINCIPLES of the POLITE ARTS  
*in their various Branches.*  
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H E A D S

OF A

SECOND SET OF

L E C T U R E S,

ON THE

P O L I T E A R T S,

FRANCIS FITZGERALD, Esq,

DRAWING MASTER.

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Si quid novisti rectius istis,  
Candidus imperti; si non, his utere mecum.

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L O N D O N:

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M.DCC.LXXXVIII.

C O R D E R  
OF THE  
SECOND SET OF LECTURES.

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OF PERSPECTIVE.

1. On the NATURE of PERSPECTIVE.
2. ELEMENTS of the PRACTICE.
3. PERSPECTIVE of SHADOWS.
4. On the Application of PERSPECTIVE.

OF ARCHITECTURE.

5. Historical Sketch of its Progress.
6. General Introductory Principles.

OF LANDSCAPE.

7. Principles of LANDSCAPE.

To prevent the awkwardness arising from references to the plates during the Lectures, they are noticed at the end of each lecture.

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P R E F A C E.

**I**T has been said by an eminent Drawing Master, that if the Lectures on Perspective were treated equally clearly and judiciously with the first Series, The ARTISTS REPOSITORY would take precedence of all works on the subject, with which he was acquainted: To justify this favourable opinion, has been the solicitous endeavour of the Author; who has selected the most familiar instances and examples, and has studied to render even Mathematical and Geometrical problems generally easy and engaging. It is not perhaps altogether possible, to convey ideas of any kind, so clearly and forcibly in print, as *viva voce*; it is, nevertheless, the opinion of all acquainted with these studies, that, with a little attention, the Reader can scarce fail of comprehending the Author's principles, or of success in adopting them.

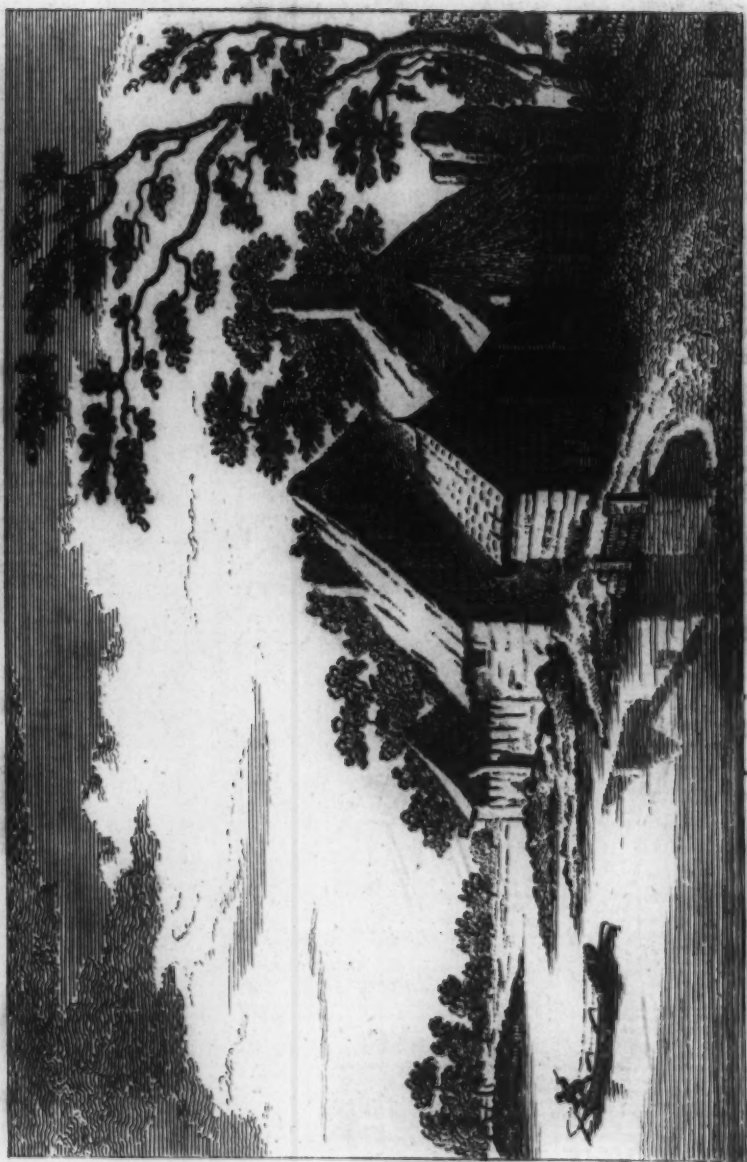
iv P R E F A C E.

The certainty of such success will be secured, if the Reader attends to the following rules. I. To understand one proposition or scheme before he proceeds to another. II. Where any object not engraved is mentioned (for to engrave every object would be endless) the Reader is advised to inspect one as near as possible to that described; as for instance, in the first Lecture, a square table, or drawing-board, with a sheet of writing-paper laid on it, will exemplify, with a force and accuracy not otherwise to be attained, not only the nature of planes, but the inferences there drawn; and so of others.

It is common to admit in Perspective Treatises, many difficult subjects of mere curiosity; those who may be pleased with such subjects, are requested to suppose it was in the Author's power to insert them; but if they recollect the popularity at which he has aimed, they will see the propriety of their omission.

LEC-



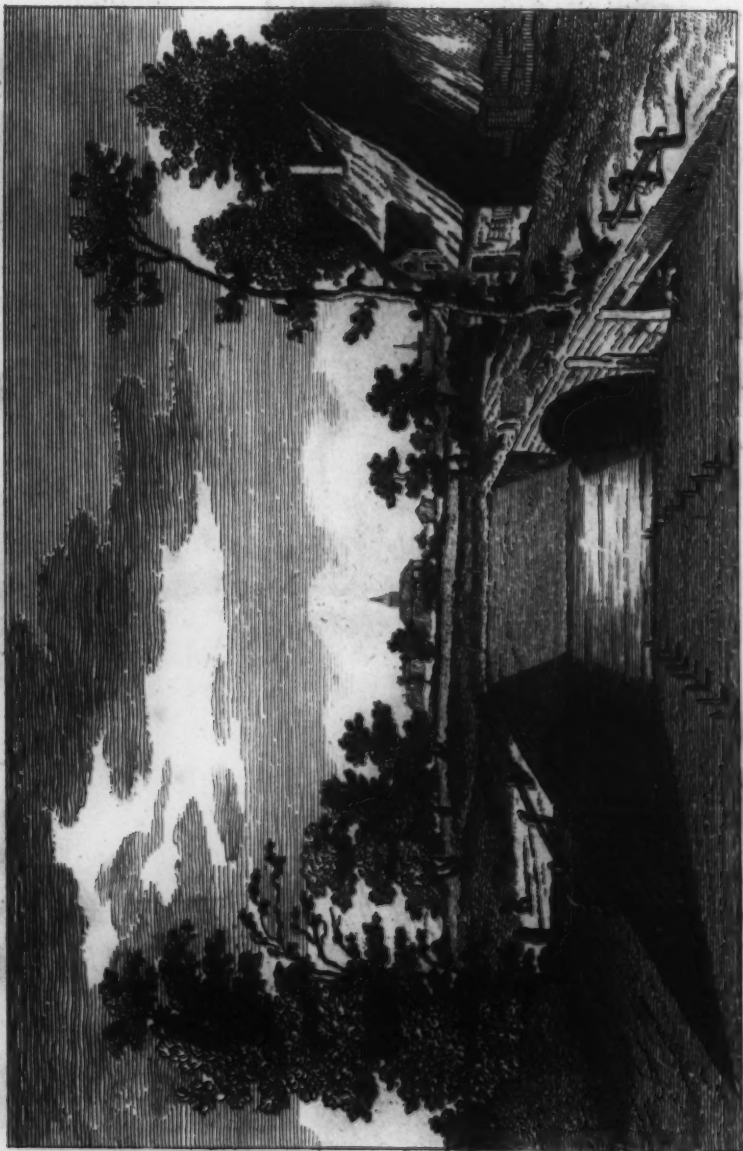






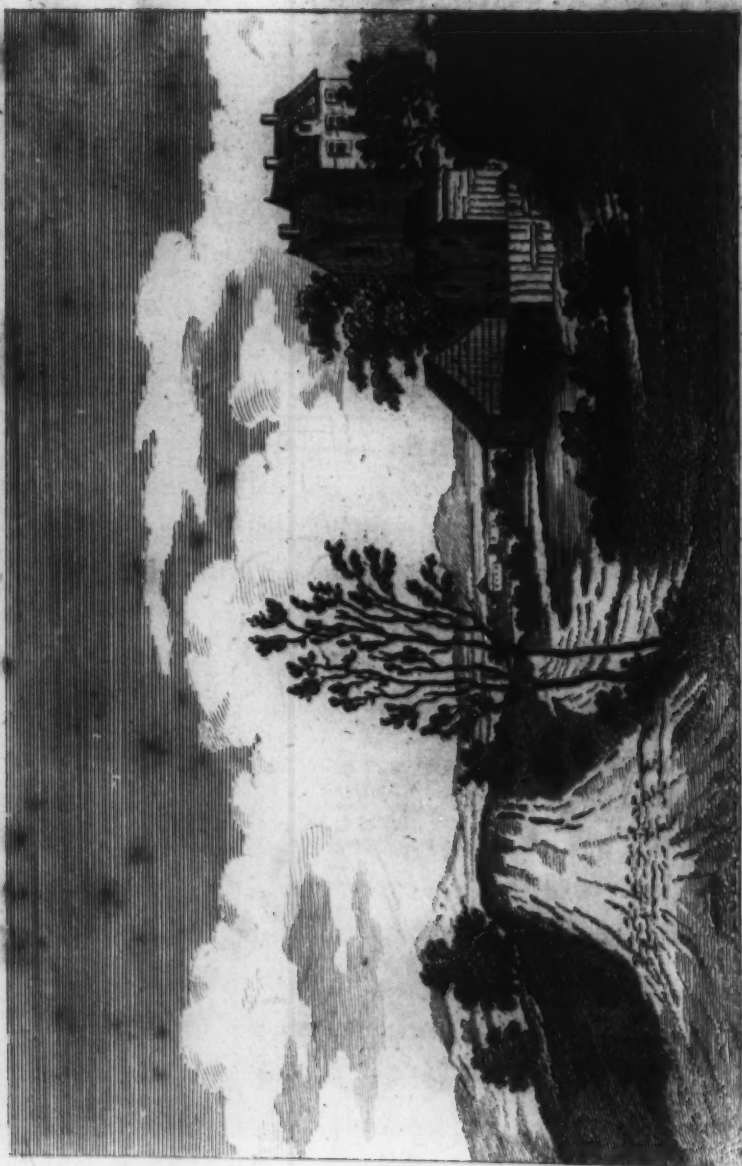


*Perspective*





*Prospect*



## LECTURE I.

LADIES and GENTLEMEN,

**I** HAVE now the honour to open a second series of Discourses on the Principles of the ARTS OF DESIGN: In this Lecture I propose more immediately to elucidate the nature and general properties of PERSPECTIVE. The recollection of the candour I have experienced on former occasions, flatters me with the hope of your equally cheerful attention to the subjects of our present Series; and I willingly persuade myself, that our late recess has rather enlivened than enervated your desire after a further acquaintance with these highly pleasing Studies; and that, as their principles become more familiar, they will likewise prove more agreeable and satisfactory.

We have heretofore had occasion to admire that wonderful contrivance (the EYE), by which we survey not only objects around us, but also those remote; to admire that astonishing apparatus which communicates to the mind those infinitely various ideas received by the sense of sight; a further examination of this organ,

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will with the utmost propriety form an early subject in this discourse. Give me leave, therefore, to request your attention, while I endeavour to explain some of the principles which regulate this admirable faculty.

I am not offering remarks as an Anatomist, or as an Optician, but shall consider the Eye as composed of (1) the CORNEA, or external part, which by its projection enables the pupil to receive a much greater quantity of vision than it would if level with the surrounding parts of the ball. (2) The PUPIL; this you know, LADIES and GENTLEMEN, is an orifice in the center of the iris, through which the rays of light pass into a very clear and transparent medium, called the CHRYSTALLINE HUMOUR; here they are converged into a focus, and again diverged till they strike that part of the retina whereto their direction inclines them. (3) The RETINA, a very elaborate collection of (apparent) net-work, furnished with nerves; by whose motions, the brain, or seat of sensation, receives information of all that passes without. Objects are pourtrayed on the retina in their proper colours, and forms, and with their just degrees of force; so that it becomes an accurate and vivid picture of whatever is transmitted by the pupil. Vivid you may suppose it to be,  
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but perhaps its accuracy may seem doubtful, when I proceed to say, that every object appears on it *inverse*; what is really above, seems below; what is really to the right hand, seems to the left.

This is very distinctly seen in the dissected eye of a large quadruped, an ox, or an horse: but perhaps the same effect is more familiar to my auditors, from observations I doubt not they must have made, on the transmission of luminous rays through a small hole, or crevice, into a dark chamber. In this case, external objects, or the effects of external objects, become depicted on the opposite wall of the chamber, *inversely* with respect to the actual situation of such objects; thus, if the perforation be next a street, the approach of passengers is, as it were, announced by a ray which strikes the part *opposite* to that whereon they are situated: for the supposed crevice being far too small to afford passage for the rays emitted from every part of an object, becomes a centre to those rays whose different directions permit them to converge. Therefore the ray from above, continuing its natural course in a straight line, necessarily falls below; as the ray from below necessarily ascends.

How then do we acquire the faculty of distinguishing

guishing the actual situation of objects? By habit; by the exercise of another sense (I mean Touching), as another medium of arriving at certainty. This habit commences much too early for us to perceive its progress in ourselves; we must therefore endeavour to trace it in those not yet accustomed to the enjoyment of their faculties. New born infants make little use of their organs of sight, as they do not possess consistence sufficient to afford a certain conduct to the rays of light. By degrees this confusion ceases, and the retina receives the rays in their due order; now they look, and stare, and exert their attention; but in vain, till, by innumerable efforts, they discover the just situations, first of luminous bodies, whose rays issue in a compact order, and are most sensible; afterwards of objects in general.

As infants cannot relate the progress of their acquisitions, we seek information on this subject from those who at years of maturity have received the invaluable faculty of seeing. With what sensations must the minds of such persons be overwhelmed? sensations of unutterable delight! especially if the transition from darkness to light, were momentary and miraculous. Here indulge the remark, how happily the Evangelist **LUKE** expresses at once  
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the liberality of our Lord's manner, and the importance of his gift; "to those who were blind he *presented* sight," a present worthy, and alone in the power of him, whose creative power originally formed the organs of vision!

I beg leave here to offer an instance, of the reception of sight, in which its progress is very apparent. It is the case of a young man born blind, and couched at fourteen years of age, by Mr. CHESSELDEN (*Philosophical Transactions*, No. 402): It is related of him, that

"When he first saw, he was so far from making any judgment about distances, that he thought all objects whatever touched his eyes (as he expressed it) as what he felt touched his skin; and thought no objects so agreeable as those which were smooth and regular, though he could form no judgment of their shape, or guess what it was in any object, that was pleasing to him. He knew not the shape of any thing, nor any one thing from another, however different in shape or magnitude; but upon being told what things were whose form he knew before from feeling, he would carefully observe, that he might know them again; but having too many objects to learn at once, he forgot many of them, and as he said, at first he learned

to know, and again forgot a thousand things in a day. One particular only, though it may appear trifling, I will relate. Having often forgot which was the cat and which the dog, he was ashamed to ask; but catching the cat, which he knew by feeling, he was observed to look at her steadfastly, and then setting her down, said, '*So, Puss, I shall know you another time.*'—We thought he soon knew what pictures represented which were shewed him, but we found afterwards we were mistaken; for about two months after he was couched, he discovered at once they represented solid bodies, when to that time he considered them only as party-coloured planes, or surfaces diversified with variety of paint: but even then he was no less surprized, expecting the pictures would feel like the things they represented; and was amazed when he found those parts, which by their light and shadow appeared now round and uneven, felt only flat like the rest; and asked which was the *lying* sense, feeling or seeing.—Being shewn his father's picture in a locket at his mother's watch, and told what it was, he acknowledged a likeness; but was vastly surprized, asking how it could be that a large face should be expressed in so little room? saying, it should  
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have seemed as impossible to him as to put a bushel of any thing into a pint."

At first he could bear but a very small portion of light, and every object appeared to him very large; (like him who saw men walking, as large as trees) but by degrees he acquired juster perceptions: Imagine then what might be his sensations when taken to Epsom he surveyed the distant prospect!

Mr. CHESSELDEN relates other instances of a similar nature, and observes of all, that they were mightily perplexed how to move their eyes after the operation; (not having had occasion to move them during their blindness) and that it was by little and little, by degrees, and after a time, they were able to direct their eyes to any object they wished to inspect.

Such is the progress of sight; and similar is the progress of the art of seeing: for there is actually no little art in seeing, and in understanding the principles and connexions of sight. How the sense is performed we have already noticed; to explain its principles, is the object of our present attention; and when we have attained to just ideas of these, we shall be, I hope, enabled so to imitate them, that we may deceive the very organ itself from whence they originate: which, in my apprehension,

hension, is the business and perfection of Perspective.

And, indeed, how valuable soever is this sense, like all our senses, it is readily deceived by proper objects, or combinations of objects: thus, what is flat, shall appear round; what is near, shall seem remote; or, what is distant, close to us. For example, were we not well certified by other means, a fly passing rapidly at a few inches before our eyes, might seem an eagle aloft; and in the obscurity of night, how often have we mistaken a bush that is nigh, for a spreading tree at a distance; or, a spreading tree at a distance, for a bush just at hand.

In advancing from the Obelisk in St. George's fields, towards Black-Fryars Bridge (or in any other similar situation), at a proper distance by night, the eye is very easily deceived with respect to the true station of the lamps on the bridge; not infrequently changing their declination from right to left, or from left to right: and the reason is obvious, for a spectator having no other rule to judge by than the brilliancy of the lamps, if a lamp at the further end happens to appear *brightest*, it immediately persuades the eye that it is *nearest*; or, if they appear equally luminous, the eye is biassed to suppose them equally distant,

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That by proper objects the eye may as easily be deceived in the day-time, appears from a customary question put to strangers on their entrance into the church of St. Peter at Rome. Having advanced a few paces, the visitor is asked of what size he supposes the angels who attend the great altar? as they appear to be human figures; "the size of life, or perhaps a little larger," is the usual reply; whereas, they are, in reality, much more than double that size.

I remember having observed, in passing a long street, where the tops of the houses were nearly uniform, a ladder set by some workmen in a position exactly corresponding to the apparent gradation of the parapets; whereby it very much confused, if it did not destroy the *perspectivity* and distance of that side of the street.

A very competent author has given us some remarks on visiting the Pyramids of Egypt; which, as the subject is curious, and allied to this discourse, I shall be permitted to introduce.

"I cannot take leave of these Monuments, without mentioning a strange deception in their appearance at different distances; it may serve to give some idea of the height of these masses, which is not to be conveyed by any comparison.

I have already said, that I set out, at midnight,

night, from Gisa, with the Arabs, who were to conduct me to the Pyramids. We directed our route by keeping these prodigious edifices, which seemed like so many mountains, continually in view. Being arrived at a village, which had hid them a moment from our sight, they re-appeared, on leaving it, so large and so near, that I thought I could touch them. I was even desirous to alight, but the guides assured me they were still a full league off. In fact, we continued to ride on, near three quarters of an hour, at the end of which the [great] Pyramid seemed so much lessened, that I alighted from my horse, a hundred paces from it, as much surprised to find it no bigger, as I had been before at its enormous size. But I presently found it magnified again on my nearer approach; and these contrarieties, in its appearance, made me curious to discover the cause. For this purpose, I removed to the distance of six hundred paces from the Pyramid, along the plain horizontal to its base; I then turned about, and this point of view giving me its greatest apparent size, I remarked, that at this distance, its perpendicular height filled the angle of the visual rays in such a manner, that, on a nearer approach, this same angle, which I shall compare to the

two legs of a compass, could only embrace a part of the object, and that at the distance of a hundred paces, I could only discover a third : to which the sensation I experienced must be attributed.

“ It follows, from this observation, that every object which exceeds the chord of the two visual rays, appears greater, and that which does not fill them, less than it really is. This principle might be usefully applied to public buildings, if the best point of sight were to regulate their proportions.”

Let no sailor laugh at the ignorant land-man, who does not perceive a ship's real course ; for the eye judges of objects by comparison, and calculates, as it were, the size and nature of those afar off, by those around it. Thus, houses, trees, &c. near us, furnish means of determining with respect to others of a similar kind at a distance, and we judge of them accordingly : but in the course of a vessel at sea, having no adjacent objects by which to calculate, the unaccustomed eye is embarrassed and deceived : I remember to have paid great attention in this instance to no purpose. As it is at sea, I presume it may be on land ; if in the sandy deserts of Arabia there be any spaces without others around them  
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in contrary, or at least different directions, I very much doubt if the eye can distinguish a slope, whether upward or downward, from level ground.

That the eye may be deceived into opinions contradictory to demonstration of the other senses, seems at first highly improbable; yet so I have known it. In mechanical instruments this is frequent; but other instances offer. In a ship a little way out at sea, whoever looks back will see the land diminish, and recede from him; it will appear to him (especially if the gale be steady and the sea be smooth) as if he absolutely retained his situation, while the gentle breezes wafted the shore out of his sight: but that it really is otherwise, needs no proof. The fallacy originates with himself.

In travelling the roads of England, at every mile, or half mile, is either a change of direction in the road, a variety of prospect, or some other novelty which diverts the *tedium* of the journey. In France many of the highways are perfectly straight and level for six, eight, or more miles together; they are planted with trees in great uniformity on each side, and by order, the carriages travel on the *pavé*, which is in the middle; thus they permit no prospect but directly through them. Imagine your-

yourselfes, LADIES and GENTLEMEN, just entering such a road; at first, what a most noble vista! its regularity almost surprising, and the elevated cross at the further end pleasing enough. You move on for half an hour, perhaps tolerably contented, but on examination, the future distance seems as long as ever; the trees appear as before, and the cross is exactly as discernible as at first: you begin now to tire of your imperceptible progress, and almost believe you have stood still. Notwithstanding the *allons* of Monsieur le Postillion; the *crick crack* of his knotted whip; the jerks of his massive jack-boots, and the rumble of the wheels on the *pavé*, at the end of a second half hour (I speak of French travelling), you seem to have advanced—nothing; for still the trees are uniform and alike, still you travel on the *pavé* in the middle, still the vista is perfect, and the cross at the further end exactly as discernible as ever. If, when you have accomplished this patience-improving labour, fickle fortune should turn you into such another, good heavens! a quarter of a mile in it, will either set you to sleep, or convince you, in spite of conviction, that you have made no progress from your first commencement.

And pray what are the reasons of this, Mr.

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And pray what are the reasons of this, Mr.

LECTURER? These, LADIES and GENTLEMEN, I proceed to consider. Beside the fatigue which naturally arises from perpetual contemplation of unvaried uniformity, there is also a distance at which the powers of the human eye fail, with respect to every object, so that it ceases to afford pleasure to the inspector; and this distance is regulated by a ratio correspondent to the magnitude of the object. Superior powers may scrutinize at a glance through systems of various worlds; our visual faculties are confined to a small horizon: if we ascend the highest mountain, if we emulate the eagle's wing, our survey bears diminutive proportion to the "ken of angels:" but if we stand on level ground, and use no artifice, narrow limits bound our view. This is not all; we have before explained the natural principles by which sight is performed; we must now remark further, that objects, according to their magnitudes, occupy proportionate quantities of the rays admitted by the pupil, and of course proportionate spaces on the retina. In other words, according to the angles under which they are seen, they impart ideas of their dimensions.

I need not prove to you, that every object apparently lessens as it recedes; that as it diminishes, you survey it with less pleasure; that it  
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costs more pains to examine; that if it be composed of parts not very large, this is an anxious labour; now, if it lessens perpetually as it recedes, it is certain that when sufficiently remote it will cease to be visible. It may be worth our inquiry, at what distance this takes place?

The smallest angle under which the eye in general may view an object, is one minute: this angle gives for the furthest station at which a strong eye might discern that object, about 3450 times its diameter: for instance, an object one foot in dimensions, becomes invisible at 3450 feet distance; and a man five feet in height, is precluded from our view at five times that number of feet, that is to say at 5730 yards, or about three miles: This calculation is for common day-light. As it is but seldom we can assure ourselves, that a man is situated, at such a spot, and at such a distance, as to afford a correct experiment, we may take any other object, with whose dimensions we have sufficient acquaintance. Thus we often see a house, its form, colour, &c. distinctly, without discerning its windows, or we discern its windows, but not their panes: and so of other instances. A little *practical* attention to this principle, will enable us to form pretty accurate judgment of the va-

nishing distances of objects. If we would take our visual powers at the utmost, we must select an opportunity when they are surrounded by obscurity, and the object inspected by light: for example, a light of an inch diameter is discernible by night at above ten times the distance, at which by day we could discern a foot diameter, consequently vastly beyond its daylight vanishing station, which is little more than four hundred yards.

These Principles elucidate the first part of the science of Perspective, which accounts for the diminution of objects. The cause of this, we have observed, is a perpetual decrease of the angle under which they are seen, correspondent to their increase of distance; the reason of this decrease, we have remarked, arises from the structure of the eye, and thus we have liberated the science from much of that universality with which some have incumbered it; by proving, that the primary principles and powers from which it originates, and by which it is directed (*i. e.* those of sight), are by no means to be considered as universal.

This will be further apparent, if we reflect that we are much more sensible of variations which take place in an object at a small distance from us, than of those which may hap-

happen in one considerably removed: thus in the *first* hundred yards of an object of one foot, we distinctly perceive its diminution; but if advanced from its vanishing station *two* hundred yards, or even much more, we should not trouble the eye to inspect it. I infer from this remark, that to apply the rules of Perspective to remote subjects is nugatory, even on theoretic principles, as already stated; but if we proceed to consider the actual space of vision admitted by the pupil into the eye, we shall further confirm this remark. It is true, omniscient Providence has contrived that certain sensations of vision should be felt by us, even from objects whose lateral situations are almost parallel to the eye; but this is confused and indistinct: it serves indeed to warn us of danger, and many other important purposes, but is too vague and embarrassed to afford just ground for scientific principles, much less for technical practice.

I apprehend that in direct vision, when we attentively inspect what is before us, we cannot be said to *see* on many degrees *sideways* from the strait line issuing immediately from the center of the pupil to the horizon. I deny not that we may *discern*, but I think that discernment is imperfect; consequently, that the very object which centrically opposes  
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our sight, is most distinctly seen; those on each side of it, somewhat less (though perhaps not sufficiently to permit calculation); those on each side of them, still less; and so on, till those remote from the center are disordered and indeterminate.

○ If this is fact, of what use are perspective representations which include many degrees on each side? Is it not rather embarrassing the spectator to offer such? especially when we well know, that, by choosing a proper distance, we reduce the whole to comprehensibility. Who that designed to view St. Paul's Church, would advance close up to the pillars of the frontispiece? On the contrary, he would walk from it, till he had acquired a station from whence the eye might see the whole, within a few degrees of its direct beam.

○ Thus, then, we have confined the truth of vision (consequently that of Perspective) (1.) to the center, and a space round it; (2.) to that distance from the spectator (looking forward), at which it is worth while to apply the rules of vision: *i. e.* to the space more immediately around him, and to a small extent, which he more accurately inspects. The rules of vision are useless, applied by compasses to distant mountains, to the parts of buildings

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very far off; or where no objects offer a gradation: A plain sky, a plain sea, are no subjects for Perspective: but where the eye most closely inspects, in forms to which it is most accustomed, and in circumstances to which it is most familiar, there it is most liable to be captivated, to be delighted, and to be deceived.

I believe I contradict universal custom, when I introduce so early the principles of the second part of Perspective; I mean, that relating to the apparent force and distinctness of objects, in the various degrees of stronger and weaker; but it is my desire to direct your attention, LADIES and GENTLEMEN, first to effects of nature, afterwards to imitation of them; which seems the more regular and perhaps perspicuous method. And indeed, since in other respects nature is the original, the model, the guide of art, I see no reason why, on the subject of Perspective, geometry should be permitted precedence; since her utmost efforts ought to be directed, not to the surpassing, but to the imitation of the universal mistress and regulatrix.

Give me leave, therefore, to recall your consideration to the source of all Perspective appearances, the natural powers, and construction of the human eye. We have already proved

proved (I hope distinctly and clearly) that the diminution of objects is caused by the smallness of the angles under which they are seen, and this is one reason why at a distance they become to us invisible, or may be said to vanish. But another cause is, the various quality and force of the rays emitted, or reflected, from objects in various situations.

It is evident, that an object which is near, and consequently occupies a greater proportion of the rays received by the pupil, will possess a larger space on the retina; also, having less distance to shoot its rays (as it were), they enter the eye in full force; whereas the removal of this object to a further station, not only diminishes the quantity of its rays, but also their lustre and vivacity; they become feeble and dim. This effect is natural to its situation; but if, beside this effect natural to its situation, we advert to the superior advantages possessed by objects still remaining near the eye, we find, not only that they occupy the place of the former, but by the vivacity and strength of the images they raise, they outshine, so to term it, their distant friend; unless indeed, as in the obscurity of night, the nearer objects are void of illumination, while the remote are strongly enlightened.

I proceed now from natural causes to notice

tice adventitious ones, the principal of which is the rarity or density of the medium through which objects are seen. To prove this demonstrably, I have only to request your recollection, that in the late foggy weather, you could see, scarce further than you could feel ; or if the eye had strength enough to discern objects immediately around it, those but a little way removed, were involved in uncertainty. The objects were in their places ; in full proportion ; and your visual powers in vigour ; but the gross medium prevented their usual perception. This is an extreme instance of what is perpetually occurring ; only in a lower degree.

The air is a very subtile and transparent fluid, and in a small space, or distance, has no perceivable effect ; but in objects very remote, we discover its power. A mountain at hand, is green, or brown ; the same mountain seen from afar, is blue ; from hill to hill may be clear ; the lower grounds (as affording most vapour) confused ; the upper part of the steeple of a great church, distinct ; the body of the same church, scarcely visible. This one great source, branches out into numberless variations, producing effects corresponding to the seasons, and the weather ; to climates, and regions. A certain En-

glish traveller in Spain tells us (and the case is the same in other warm countries, in very clear weather), that the outlines of distant hills, trees, &c. are defined with surprising accuracy, and sharpness. Elsewhere this effect is reversed.

Having thus briefly noticed the leading principles of natural Perspective, I proceed to offer a few words, explanatory of that foundation on which we mean to erect the ART OF PERSPECTIVE: we have already disclaimed the universality of its powers, or of its application: I hope, by taking up our ideas with modesty, we shall attain greater certitude, in what we attempt.

The seat of Perspective is the eye; one eye if you please; for it is undeniable, that by opening or shutting either eye, the positions, &c. of objects change: therefore we consider only one eye in this business, and that eye as a point. A word more on this subject; at a certain distance, the rays from each eye coincide, and unite, so as to answer the purpose of one eye; this remark will hereafter appear of importance, since whoever places himself to view a picture nearer than this distance, contravenes the design of the Artist, whose calculation is intimately connected with this circumstance.

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As it would be perplexing to treat on points, or small objects, when extensive and larger are more distinct, I beg your notice, LADIES and GENTLEMEN, of the following principles.

A plane is a surface ; a mere ideal extended superficies having no thickness : this sheet of card paper is therefore almost a plane, but not quite ; as having some substance. This drawing-board is almost a plane, but for the same reason not altogether ; however, it may serve to elucidate the nature of planes ; excepting, that as planes are mere geometrical ideas, they may be supposed in any direction whatever ; or any number of them may cross each other at all points with facility ; a facility to which mahogany has no pretensions. Permit me however to call it a plane. Now for its application.

The direct beam of the eye, is (naturally) diametrically opposed to the horizon ; in other words, the horizon is the height of the eye ; I speak of a fair equable horizon. The course of rays shot from the eye, to the various parts of this horizon, is a plane of rays. Again, the ground whereon a spectator stands, is another plane : now if you suppose the spectator to remain fixed, while all the space from a few feet before him to the horizon, is gently elevated (vertically), when it has risen to the level of his eye, he will not be able any longer to

discover objects situated upon it ; they are precluded from his sight, and together with the ground plane itself, form a mere line ; or *vanish*. It follows, that the line formed by the horizon, is the *vanishing line* to the ground plane.

Or, change the supposition, and imagine the ground to maintain its stability, while the spectator descends ; as he becomes lower, and lower, the distance between the horizon and the ground diminishes, and at length they unite. Just as on this drawing-board, you see *now* from end to end ; but as I elevate it (yet keeping it horizontal), when it is equal in height to your eye, you discern not any part but its edge. Now observe, that if the ground plane, were it produced, would vanish into the horizontal line, all lesser planes (lying, being, and situate, as the lawyers say) on this ground plane, would vanish into the same line. But although not thus produced, yet the ground plane (and consequently all planes upon it) have a perpetual tendency and inclination toward the said horizontal line.

If an object being part of a plane lying on the ground, follow the direction of that ground, *i. e.* if it lie strait before the spectator, that point in its vanishing line to which its sides will tend, is that struck by the center beam

of the spectator's eye; it is, I say, the center of the horizontal line. But, if the part of a plane lying on the ground, be situate obliquely with respect to the spectator, then the point on the horizontal line to which it tends (*i. e.* its vanishing point) will be removed on that line, from the center, to one side of it; according to its obliquity. *e. gr.* If it is ten degrees oblique from the eye, its vanishing point will be ten degrees distant from the center, and so on.

As an example, I have, you see, laid this plane of card paper, on this plane of mahogany (which represents a portion of the ground plane immediately before a spectator); but as the directions of their sides do not agree, it is certain they will never arrive at the same point; but according to the variation of the card paper, from the true point of the drawing-board, so will it remove its vanishing point on the horizontal line. But observe, that while it remains on the drawing-board, it may wish in vain for any other line on which to vanish; the original plane has absolute power of directing it to some point on its own vanishing line.

Thus, LADIES and GENTLEMEN, have we illustrated the nature of planes, of the horizontal line, and its center, of the ground plane,  
and

and of vanishing points. What has been said, has related only to planes, in a horizontal position. What must we do with vertical planes? The same principles answer this question. Instead of supposing from the center beam of a spectator's eye, a line extended *laterally* (which forms in consequence the horizon); we suppose a line extended *perpendicularly*, above and below the center; then is its office with respect to vertical planes, the same as that of the horizontal line with respect to horizontal planes. I move this drawing-board (holding it vertically) along the edge of the table; when it arrives at the direct beam of the eye, it becomes in unity with the said centrical vertical line; consequently it appears a mere plane, or, it vanishes. And this card paper plane, is you see directed by that to which it is affixed, so that though it will not vanish in the same point as the drawing-board (which now represents a portion of a vertical plane at the same elevation as the spectator's eye), yet it will vanish on the same line, in a point correspondent to the angle of its obliquity.

Vertical planes parallel to the spectator, I scarce think objects of explanation, after what has been said; the only perspectivity of which they

they are capable, being a diminution as they recede from the spectator: but if we suppose any objects portrayed upon them, these will preserve their regular stations; not only the perpendicular lines continue perpendicular, but the horizontal lines continue horizontal: and thus, a square, which in either of the planes we have treated on would become oblong (I mean shorter on two sides than on the other two); or a circle, which would become elliptical; in a parallel vertical plane continues to be a square, or a circle. Nor shall we in this discourse, regard planes oblique to the horizontal and vertical lines; since they also may be reduced to a construction similar to those already described; and since in our future progress they may be attended to with advantage. Moreover, I reflect, that I am not addressing an auditory in academical trencher-caps, bonnets, and bands, but (a considerable part of it at least) in gauze caps, bonnets, and ribbons; who, I conceive, engage in these studies, not intensely, though heartily; not making it the business of life, but a most agreeable relaxation, uniting pleasure with improvement; and therefore at present I leave the subject as already treated to your consideration. For similar reasons I have avoided all mathematical terms  
and

and expressions, that I possibly could, and have endeavoured to familiarize the whole: if I have succeeded according to my desire, we have done without abstruse terms, and hard names; without AXIOM, THEOREM, COROLLARY, or even Q. E. D.

Now as you go home, LADIES and GENTLEMEN, you will look down the first regular and strait street you pass; and you will observe the planes around you: the pavement is undeniably the ground plane; in that part of another street which crosses the end of what you are in, will be the center of the horizontal line: and the fronts of the houses on each side the street, are vertical planes; which, together with the ground plane, seem by their diminution perpetually tending to the center.

I conceive you have now, LADIES and GENTLEMEN, the whole science and secret of Perspective in your possession; whatever variations may happen, or indeed can possibly be contrived, may be reduced ultimately to these principles. I shall detain you but little longer, while I notice what, perhaps, may to some person of my auditory, at some time or other, prove serviceable.

From the nature of the visual rays, I infer, that the misfortune of a cast in the eye,  
arises

arises from the obliquity and declination of the center beam of one eye, caused by the unequal strength of the eyes, whereby one shoots its beams well, the other with infirmity; now as this is regulated very much by the situation of the nose, a gradual addition of some thin substance to that side of the nose next the affected eye, I am persuaded, would in time divert the center beam of that eye, from its false to its true direction.

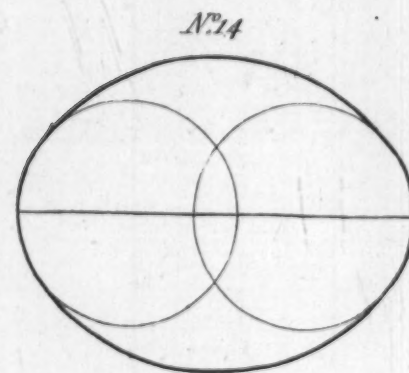
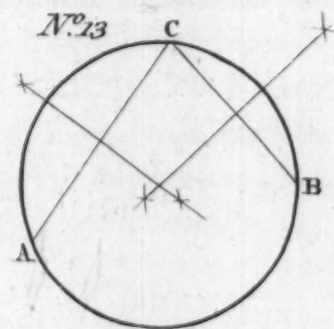
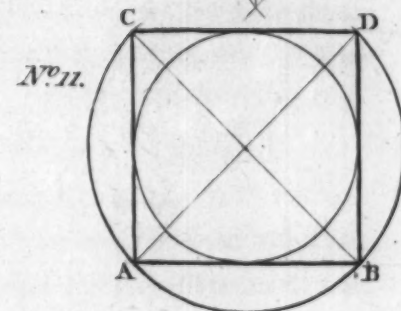
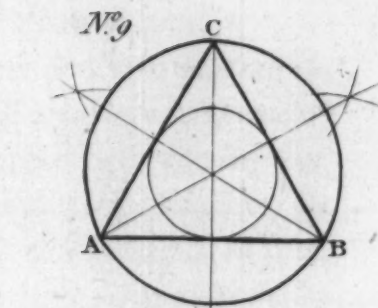
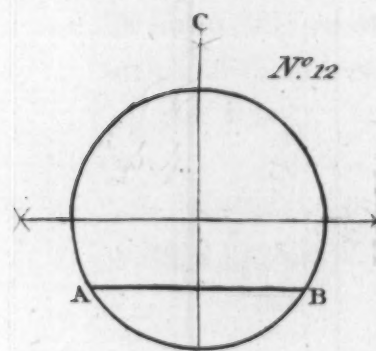
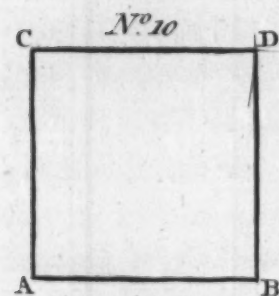
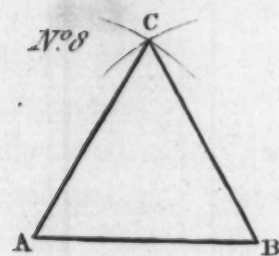
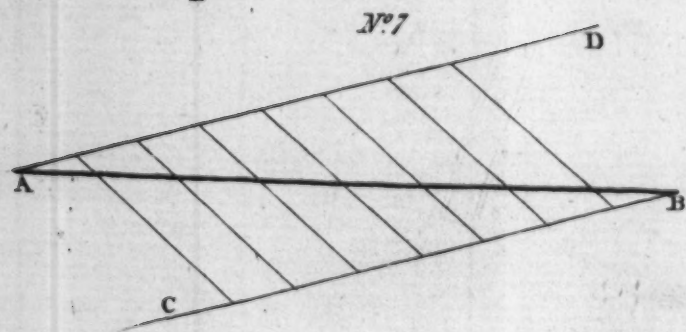
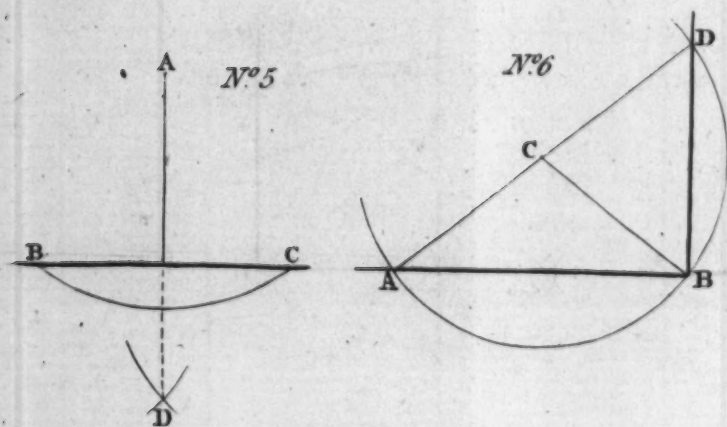
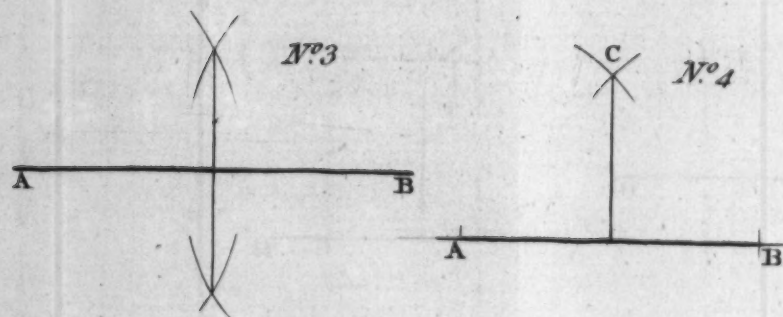
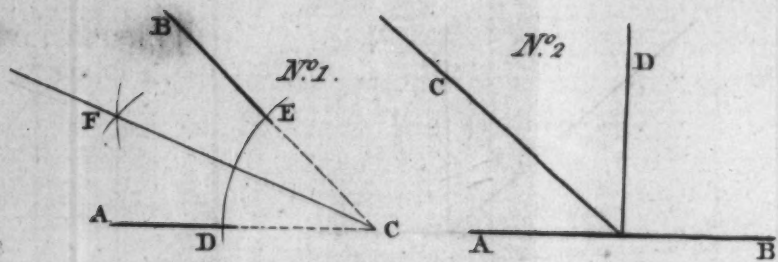
To support what has been said relating to the angle under which objects are viewed, I appeal to the principles of telescopic, or magnifying, glasses, which act by extending the angle (and which may be considered as an eye in advance), and by counteracting that diminution of objects which is the basis of perspective.

If the bodily powers of man are exceeded by creatures of inferior rank, yet his mental abilities make him ample amends. Of this, our subject is a direct proof; since, however confined by nature, art has extended our faculties immensely "beyond this visible diurnal sphere." Not only are the splendid luminaries from whence we derive light and heat, inspected by us, but other systems are explored, and other suns examined. Perspective has its uses too in the business; such at least was the opinion

of that philosopher (HUYGENS) who wishing to calculate the dimensions of a remote star, could only accomplish his purpose by *reversing* his telescope, and thereby reducing the sun to similar dimensions, as if placed at a similar distance: very justly, therefore, may it be said, that this science is not confined to our terrestrial ball; its principles extend into ether itself, and its laws regulate the apparent splendors of the celestial luminaries. But with regard to ourselves, LADIES and GENTLEMEN, we are attending to perspective as to the principles of one of our faculties; and indeed it seems to me so intimately connected with our natural faculties, and capacities (those highly proper objects of our study), that I am sorry, when I meet with any person, who, though possessing the gift of sight, disregards the principles of a science so very important and invaluable.



PERSPECTIVE.  
PLATE I.



## OBSERVATIONS

*Relating to the Examples given in the Plates, and which belong to the foregoing Discourse.*

ALTHOUGH geometry must not be permitted precedence of some of the general principles of perspective, yet is an acquaintance with certain of its problems very useful to the student; principally for the following reasons (1) Because, being formed by the compasses and ruler, they are mathematically exact; and therefore (2) They discover at a glance the difference between the same figure in geometrical proportion, and when seen in perspective: as for instance, a square, or a circle, is determinately different in its form and appearance. We shall therefore attend somewhat to the simple elementary figures of this science, and to the readiest methods of forming them, previous to rendering them in perspective.

## P L A T E I.

No. I. Two lines not parallel, produced till they meet, will form an *angle*: thus A and B are united at C, and form the angle ACB. N. B. An angle being generally denoted by three letters, the middle one always represents the angular point.

An angle is divided by setting one foot of the compasses on the angular point C, and striking the arch DE: then from D and E, sweeping EF, and DF;

E 2

whose



## OBSERVATIONS

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whose intersection divides the original angle, by a line drawn to C.

No. II. When a line stands erect on another line, it forms a *right angle*, as BD : when it exceeds a right angle, it becomes *obtuse*, as BC : when less than a right angle, it is termed *acute*, as CA.

No. III. To divide a right line into two equal parts : set one foot of the compasses on the point A, and sweep an arch above and below the line ; then sweep a similar arch from the point B : their intersections united by a line, will mark the exact division.

No. IV. To raise a perpendicular from a given line : from any point as a center, mark two equal distances A and B : from thence sweep the arches AC, AB, a line uniting their intersection C with the original point will be perpendicular.

No. V. To let fall a perpendicular from A to a line beneath it : set one foot of the compasses in A, and strike BC : bisect B and C by the sweep BD, CD, (as before in No. I.) the intersection will be perpendicular to A.

No. VI. To raise a perpendicular at the end of a line : set one foot of the compasses in B, place the other foot any where towards C, then from C as a center, sweep ABD : through A and C draw a line till it intersects the circle at D, which will be perpendicular to B.

No. VII. To divide a line into any number of equal parts : from one end as A, draw at pleasure AD : from the other end B, a line parallel to AD, as BC : from A towards D, and from B towards C, set off a number of spaces, one less than the number desired : then  
unite

unite the first in BD, with the last in BC, and so on in progression; their intersections with the original line will divide it as required.

No. VIII. A plane surface, terminated by three right lines, is a *triangle*: if the three sides are equal, it is an *equilateral triangle*. To form this figure: from A strike AC length of AB; from B, strike BC: their intersection gives the third point of the triangle, as at C.

No. IX. To inscribe a circle in a triangle: bisect two of its sides, as AB, AC, by the method No. I. their intersection is the center for the circle required: the compasses extended to an angle of the triangle, will give the diameter for inscribing a circle inclosing the triangle.

No. X. A plane terminated by four equal sides, at equal angles, is a *square*. To form a square: erect AC, which terminate at the same length as AB; rule CD parallel to AB: and BD, to AC, to complete the figure.

No. XI. To inscribe a circle within (or without) a square: unite the opposite angles AD and BC, their intersection is the center desired.

No. XII. To find the center of a circle: rule at pleasure a line touching at each end the circumference, as AB; on AB erect a perpendicular as C; then bisect so much of C as is contained in the circle, which will give the center.

No. XIII. To inscribe a circle through any three given points, as ABC: unite them by lines drawn to each, bisect the lines thus drawn by perpendiculars, whose intersection denotes the center of the circle.

No. XIV.

No. XIV. The readiest way to form an oval, is by striking two small circles (one at each end of a right line): their intersections denote the centers from whence to strike the opposite sides to complete the figure.

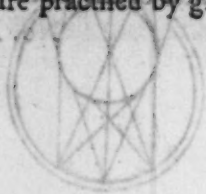
## P L A T E II.

No. I. Is intended to explain the course of the rays of light, as described at page 7 of the Lecture: the progress of A from above, is to *a* below, as that of E below is to *e* above: only C (the center) retaining its original situation.

No. II. Explains the same idea, and shews that, supposing a great degree of refrangibility in the humours through which the rays pass, the object will yet appear inverted.

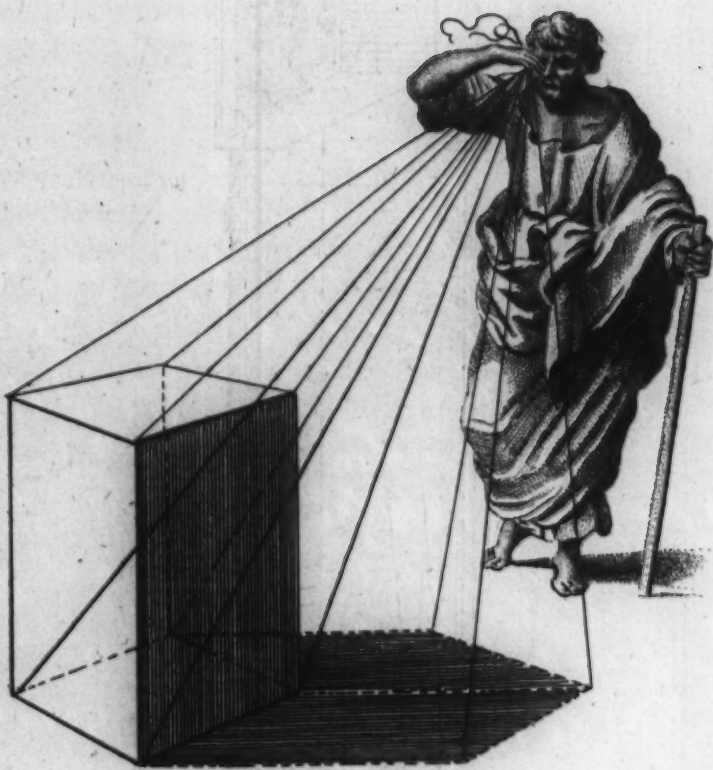
No. III. Illustrates the principles of the diminution of objects by the smallness of the angle under which they are seen, vide page 10: thus CC, though the same real width as AA, or BB, yet appears on the line BB as considerably less, and on AA is diminished full two thirds of its just dimensions; the same effect appears at *aa*, *bb*, and *cc*.

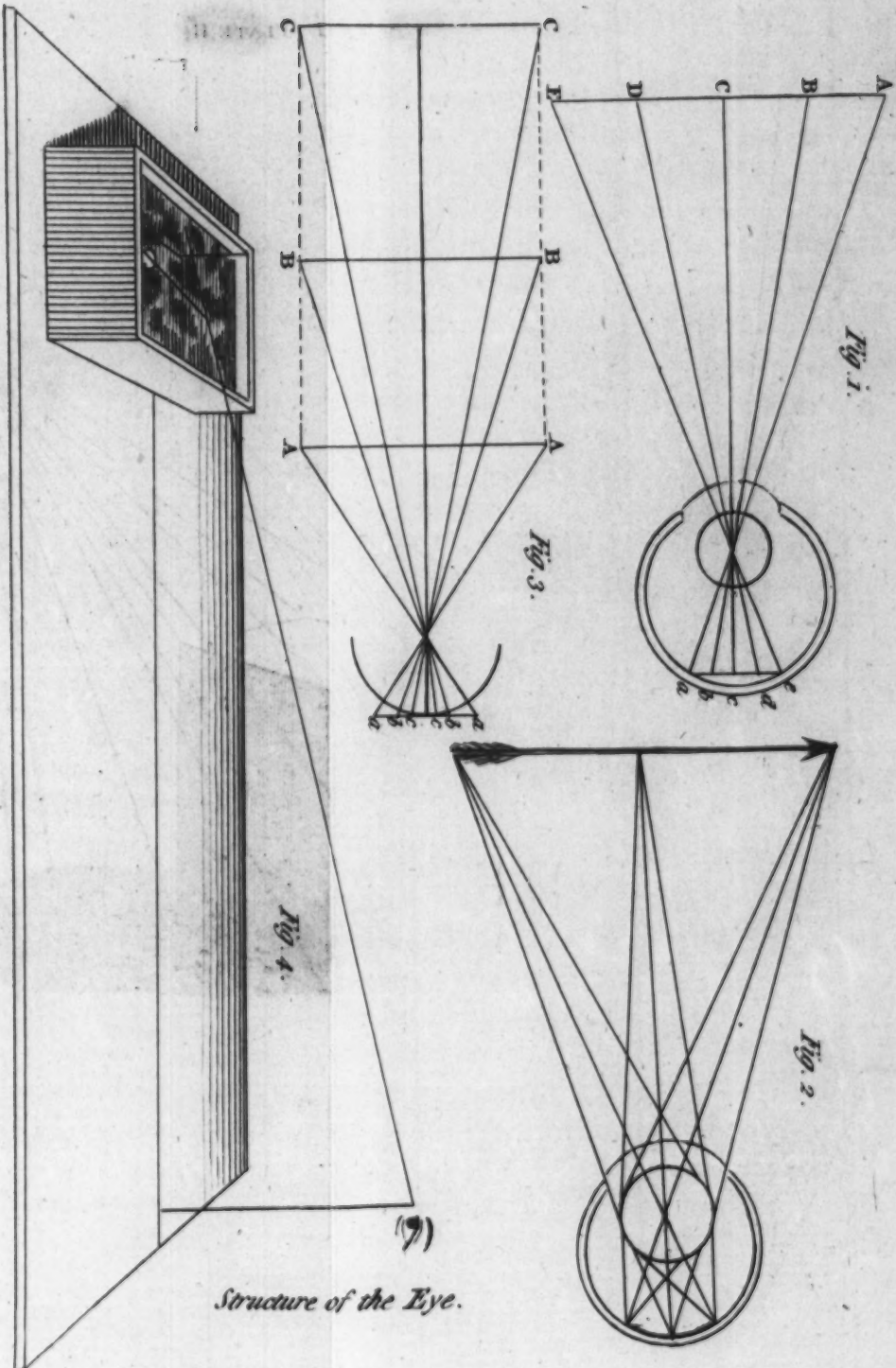
No. IV. Is an additional instance of ocular deception: but being rather artificial, than natural, was postponed to this place.—It represents a vessel containing a piece of money, so placed at the bottom, that the eye cannot perceive it, because its beams shoot over it: to render it visible to the eye preserving its station, the vessel is filled with water, the refraction of the rays in the water enables the eye to discover it. Many deceptions of the eye are practised by glasses, &c. in optics; but they do





PERSPECTIVE. PLATE, II.

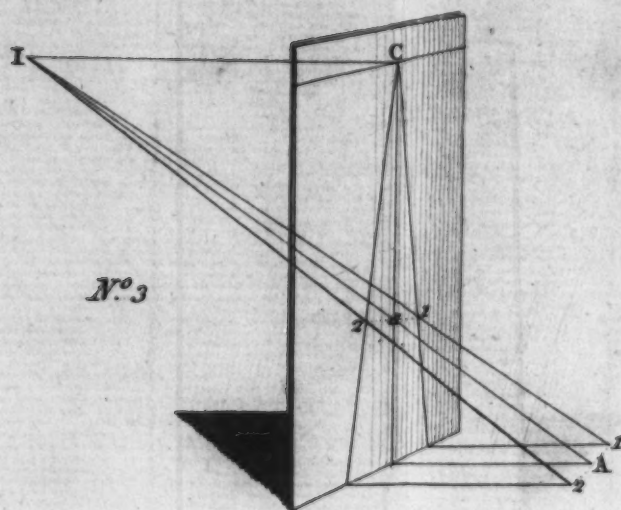
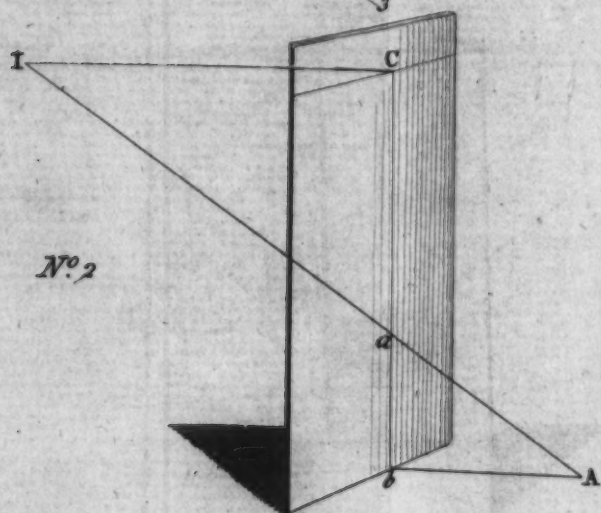
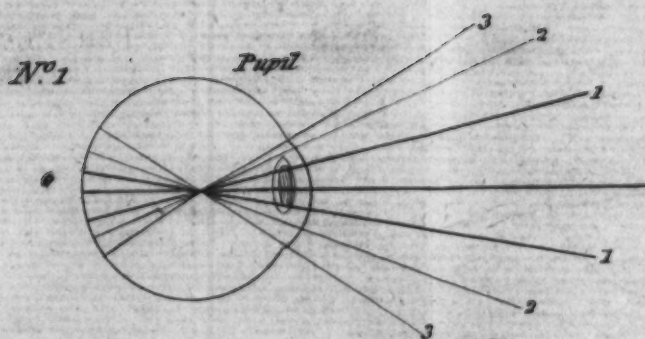


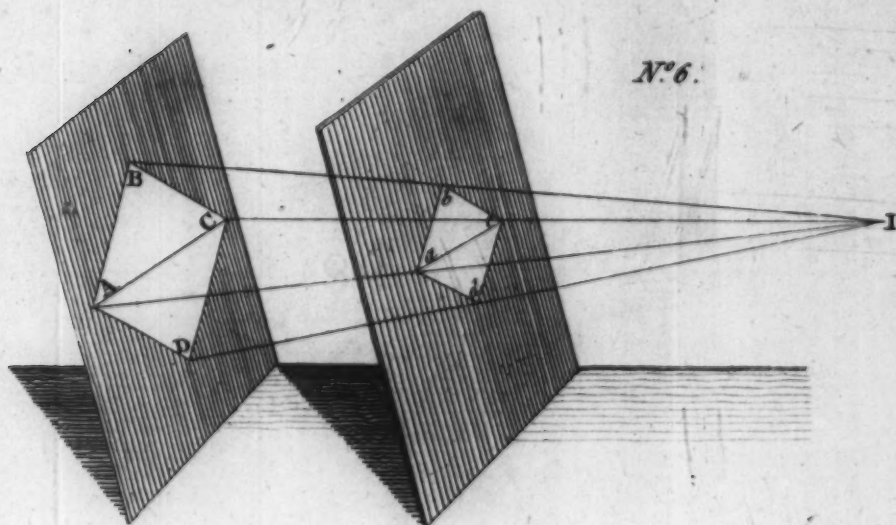
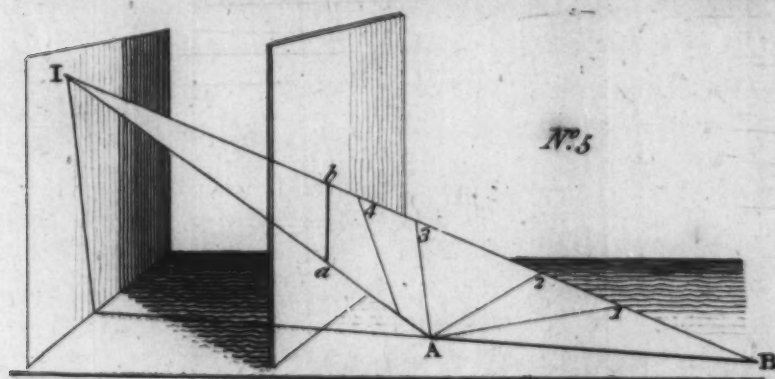
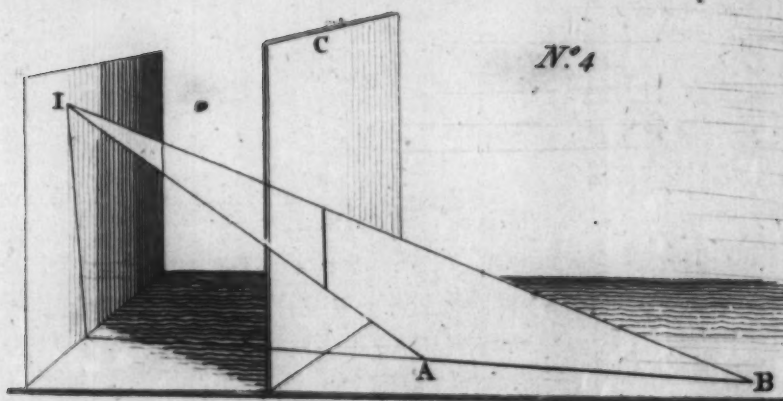


Structure of the Eye.











not properly belong to the nature of perspective, though they flow from its principles.

No. V. Exhibits the nature of a cone of rays, as issuing from an object to the eye of a spectator: if a transparent medium or glass be supposed to be situated between his eye and the object; it is evident that the point where any ray intersected that medium, would represent to the eye a correspondent point of the original object: and if the whole number of rays were thus described on the glass, they would form a picture of the object, corresponding exactly to its dimensions and figure, and having the same effect to the spectator.

### P L A T E III.

No. I. Is intended to shew, that the rays which pass most *directly* through the pupil are most vigorous in their effects, vide Lecture I. page 21. In a very strong light, the pupil admits few rays; but those very brilliant: In obscurity, the pupil admits a much greater number (being extended), and probably of equal, or nearly equal force.

No. II. It is necessary to premise, that in explaining the following examples, the terms perpendicular and horizontal have no relation to the natural horizon, but relate solely to the position of lines with respect to each other: thus the line  $IC$  is perpendicular (i. e. is at right angles) to the line  $Cb$ . These figures likewise explain many of the terms adopted in treating on perspective. In this example the upright plane is supposed transparent, and the Eye to be situated at  $I$ ; a line drawn direct from  $I$  to the plane (or picture) strikes it in  $C$ ; which is therefore the *Center*. From  $I$  to  $C$  is termed the *distance* of the picture;

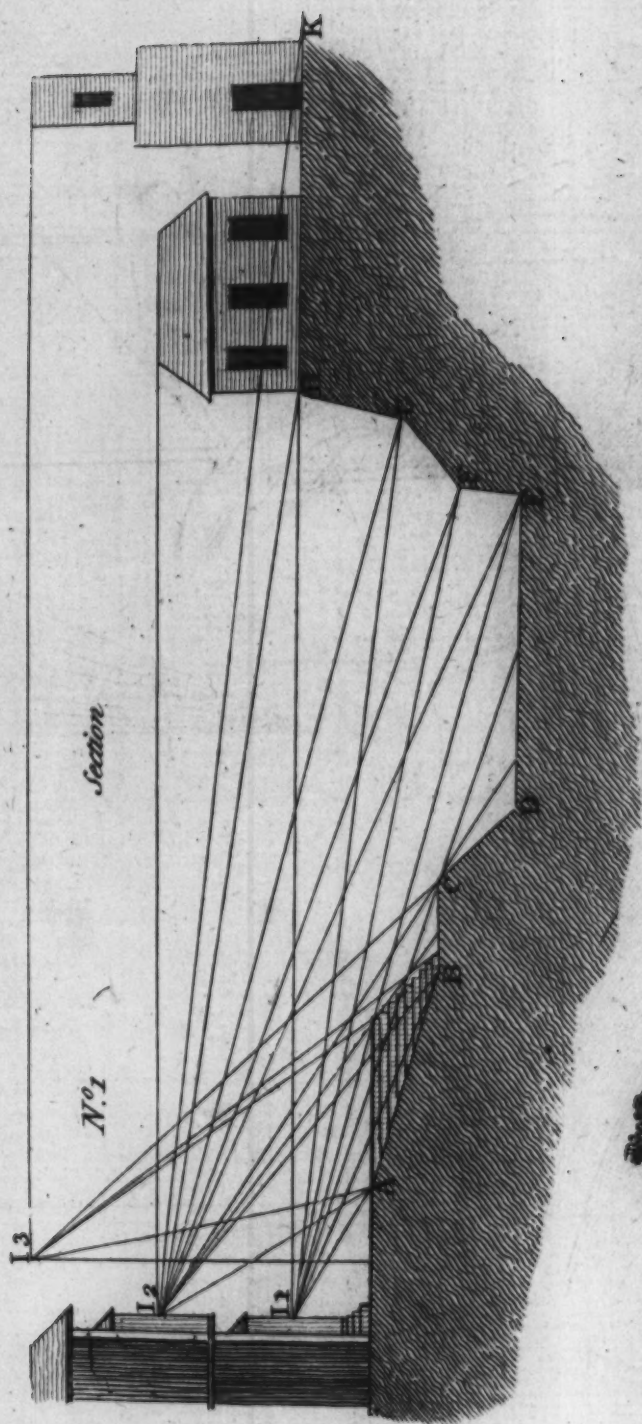
picture; and is the just distance at which a spectator should survey the picture. The question is, in what part of the picture the eye (I) will perceive the point A? To determine this, the point A is united to the bottom (or *ground line*) of the picture, by a line parallel to IC; where it intersects the picture, at the ground line, is termed its *seat* on the picture. The seat on the picture being united by a line to the center C, (*i. e. its vanishing point*) it follows, that in some part of this line will be the representation of A: the exact place is found, by uniting I and A, which gives *a* for the true situation of A on the picture, to the eye at I.

No. III. Is exactly the same example diversified by a point on each side A; which worked by the former process, gives for 1 A. 2. the representation 1 *a*. 2.

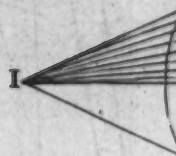
No. IV. Instead of the points being placed on each side to form a line (as in No. III.) in this example, the line is formed *forward*. The representation is equally found by obtaining its seat on the picture, and uniting it to its vanishing point; then drawing AI. BI. to determine its length.

No. V. Is a curious problem, shewing the imperfection of the art of perspective geometrically considered. Every thing standing as in No. IV. it appears by this figure, that the representation *ab* (of A B) may likewise be the representation of any line, in any direction, whose extremes will give the points *a b*. Thus A 1. A 2. or A 3. may equally appear to I to be A B. This being evident, it may be asked, how then do we determine with respect to the real forms of objects? The reason is, partly because by perpetual use the mind acquires the habit





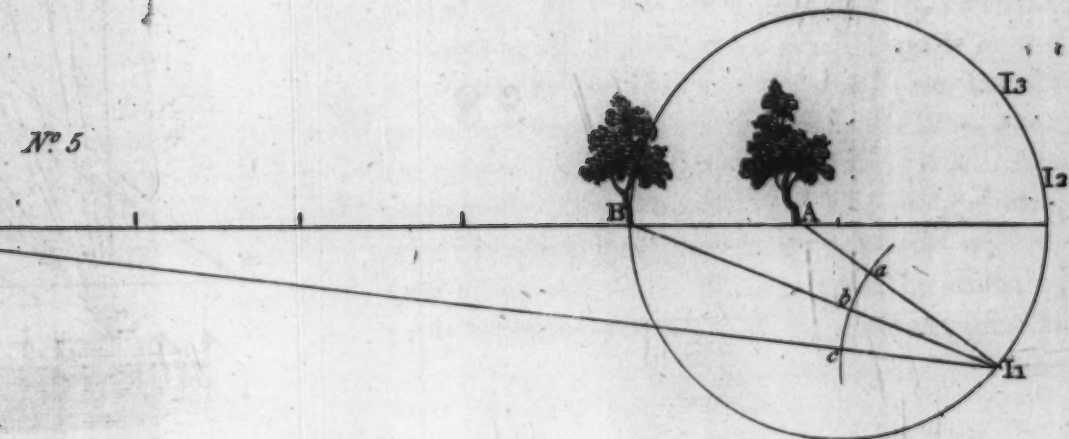
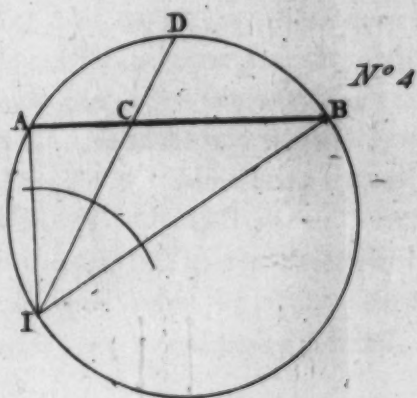
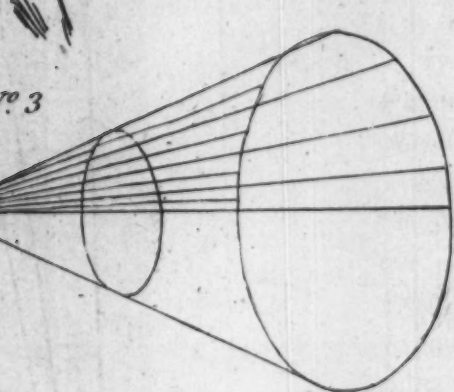
*N<sup>o</sup> 3*



*N<sup>o</sup> 5*



A diagram illustrating the principle of a camera obscura. On the left, a profile of a human face is shown with the eye labeled 'B'. Light rays from the face pass through a lens labeled 'G' and are projected onto a screen on the right. The screen is a rectangular box with a hatched interior. The projected image is inverted, with the top of the face at the bottom of the screen. The rays are labeled 'C', 'D', and 'E' at the screen. The text 'N<sup>o</sup> 2' is written above the lens. Below the main diagram, there are two small circular diagrams, one labeled 'D'.





habit of judging, and comparing objects with each other; and partly because the effect of light and shadow decides the matter. This figure may illustrate the supposition of slopes in the Desert of Arabia, and seems to confirm the idea, page 15. See more in Lecture IV.

No. VI. Is intended to shew, that when the plane wherein any object is situated is parallel to the picture, the representation of the object will be parallel to the original, and exactly follow it: as appears by *a b c d* which corresponds to *A B C D*.

#### P L A T E IV.

No. I. Is a section explanatory of the principles reasoned on in page 27. It represents the eye of a spectator at three different situations, *I 1. I 2. I 3.* The lines drawn from the various points of the objects to the eye, shew (by the spaces they occupy on the upright line immediately before the eye) in what proportion the eye discerns the parts of such objects.

To *I 1*, the slope *A B* appears not much larger than the small space *B C*: *C D* is totally unseen by it; as is great part of *D E*, and *E F*: *G, H*, it sees distinctly; but *H K* is a mere line, and therefore its extent is not perceivable.

By *I 2* many parts hardly discernible by *I 1*, are seen very distinctly; and it has a view of *H K* from end to end: but the top of the house is not seen by it; except as a line.

*I 3* has yet greater advantages, as appears on inspection.

This figure shews what is *possible* in perspective : not only horizontal, or vertical planes, may be delineated ; but slopes both upwards and downwards, when surrounded by objects whose directions are different.

If at any time the student doubts whether a certain part of his design may be seen from the station he has chosen for the eye, a similar section will decide the case.

No. II. Shews the nature of the beams issuing from each eye A. B. i. e. that they cross each other at a certain distance, and at length unite, so that they may henceforth be considered as one only, as C D E.

No. III. Is intended to shew, that the outline of the space naturally seen by the eye is a circle, correspondent to the form of the eye itself ; but as the ground prevents the course of the inferior rays, only the superior are marked. The inferior rays might have some course in water, but it appears by No. IV. Plate II. that they would be much diverted from their direct lines ; so that to shoot a fish at some depth, would require an aim apparently very ill directed.

No. IV. Is a perspective trick ; and represents the manner of placing a spectator, I, in such a situation, that the line A B shall appear to him equally divided at C : which it really is not. To perform it : inscribe a circle passing through A and B, divide the arch A D B into two equal parts, as at D : draw a line from D through C, till it reaches the circumference of the circle, as at I, which will be the place required.

No. V. Is a trick of the same kind, which might be useful as well as amusing, in a park or garden, &c. by  
 proportion

proportioning the size of the objects, their force of colour, &c. Suppose three trees planted in a straight line A B C, the distance between B C is five times the distance between A B, it is required to describe a path from which whoever walks in it, shall see the middle tree equally distant from the other two. Produce the line C A; set on it from B, half the distance between B and C: this half distance now becomes the diameter for a circle, any where in which a spectator (as at I 1, I 2, I 3) will see B equally distant from A and C: as appears at *a b c* to I 1.

## LECTURE II.

LADIES and GENTLEMEN,

**N**ATURE is ever various in her operations and effects; but that variety, however diffuse, or extended, nevertheless results from certain general and permanent principles, whose simplicity is accommodated to occasions as they rise, and whose application is directed by utility and convenience.

Art is the imitator of nature, and is never so truly valuable and excellent, as when, like nature, its principles are few, simple, and facile; and their application general, certain, and perspicuous. It will therefore be my endeavour, at this opportunity, to introduce to your acquaintance some of those elements of **PRAC-TICAL PERSPECTIVE**, whose utility is most extensive. Let us never forget, that our business in representing the appearances of objects, is not to surpass, or to vary, but to imitate their natural effects; and those methods are most useful, which to the readiest expedition unite the happiest certainty.

I wish to observe, preparatory to practice, that perspective may be considered under two ideas (1) as DIRECT (2) as REFLECTIVE. To explain myself; I beg you to consider that when you survey objects, of what nature soever (whether a simple lawn, or an extensive campaign), they appear *before* you if seen through a transparent medium, or glass window; but, if you see them in a mirror, although their general effect is the same as before, and their verisimilitude almost as decisive, yet in some respects they differ. The slab which is under that looking-glass, demonstrates this matter: in looking at the slab itself (which we term an original object) we observe that its front is, and appears to be, nearest to us; whereas in the glass, it is farthest off. This lady's fan which I lay open on the slab, appears in the original object with the circular edge of its mount farthest from us, and its handle nearest to us; but in the glass, the mount seems to approach, and the handle to recede; correspondent to this effect, you see the ornamental figures on the mount are inverted. This reflective quality enables the glass to exhibit a most perfect picture of surrounding objects; and when objects thus exhibited are correspondently similar, we are hardly induced to acknowledge the

the deception. This square tea caddy, whose four sides are perfectly uniform, appears almost as tangible in the glass as on the slab; this round ball is as evidently a round ball in the glass, as in my hand; nor would you (were the effect of light and shade suspended) be sensible of any difference. This reflective perspective (shall I so call it) being abundantly more convenient than the direct, for some subjects, becomes an object of much attention: and indeed, is equally exact, when the objects introduced are judiciously selected, and happily situated. As for instance, if we wished the glass to become a picture of the fan with its handle farthest from us and its circular mount nearest to us,—by reversing its original situation, we obtain our desire: nevertheless, the figures on the mount are not brought into their just situation, but though relieved from their topsy-turvy state, yet continue reversed as to right and left. Subjects containing geometrical figures, architectural designs (when regular and uniform), which admit of representation by plan, are greatly facilitated by this procedure.

Your attention, LADIES and GENTLEMEN, is now directed to the necessary preparatives for the practice of perspective: Among the first,

first, and most important, is **CONSIDERATION**, and this is to be applied to several articles. If, as we have already stated, the natural horizon is the height of the eye, it needs little proof that its relative situation in a picture requires consideration; and this appears yet more strongly, when we reflect, that the eye, if supposed too high, raises the horizontal line proportionally above the just elevation at which we are accustomed to survey objects, and at which others are expected to view them: and if we lower the horizon, none but dwarfs will thank us. In fact, as nature has proportioned us to the world about us, our best way is, to consult that moderation which is most convenient.

Moreover, as a piece of perspective is a representation of certain objects from a given station, we should (if it may be done) endeavour to accommodate the principles of a subject to the situation in which it is most likely to be inspected; since the nearer this situation approaches conformity to the original station, the nearer will the effect of the composition approach to verisimilitude: this, therefore, is to be considered. And if in a picture intended for a certain place in any apartment, an artist should omit to observe on which side the light entered,

entered, and should, therefore, cast his shadows *toward* the window, and his lights *from* it, I should think him, to say no worse, a very inconsiderate practitioner.

The infinite variety of cases connected with the foregoing remarks, precludes the possibility of rules; but on the last article of consideration, which at this time I shall submit to your candor, somewhat like rules, or an advance towards them, may be attained. It is, I say, possible to regulate the *DISTANCE* of the picture.

Perspective supposes that objects may be situated so close to a spectator that he cannot see them, and in fact, our daily practice toward objects of any considerable magnitude justifies the science; since we constantly recede from them, to a proper distance, as observed on a former occasion.

An additional remark may confirm this idea: I conceive it needs little proof, that the boundary of the space of vision, or of the rays received by the eye, is a circle; for since the orifice of the pupil is circular, it cannot well be otherwise. Now, as we have already shewn, the two outlines, or boundaries, of the visual rays from the two eyes, at a little distance from the person, have precisely the effect

effect of one only ; it appears clearly, that nature never intended any object, whose diameter is too large to be comprised within the circumference of that circle, should be surveyed closer than the station which produces this effect. In fact, the internal humours of the eye are obliged to assume a form different from their usual one, when forced to accommodate themselves to the inspection of objects within this distance ; and perhaps, after all, such objects are usually seen with one eye (the other becoming quiescent), or at least best seen with one eye only.

A similar mode of reasoning greatly enforces the importance of this article to subjects not so closely approximated, but of larger dimensions, seen *directly forward* ; and, if we advert to subjects seen *laterally*, we shall find an injudicious distance very much increases the confusion of rays admitted sideways into the eye, and what “ being remote from the centre, is naturally disordered and indeterminate,” now becomes insufferable.

Permit a familiar example to elucidate this matter. When two persons stand conversing close together, they naturally look at each other about the height of the eye, consequently see very little more of each other than the face ; now, if their conversation should happen to refer to

the foot, a motion of the head is necessary to inspect it: which motion of the head, be it remembered, deranges totally the former system of perspective. But if a person was minded to survey another from head to foot at one view, it would require a space between them of at least double the height of the beholder. And the same is true of latitude, as of altitude.

To the choice of a judicious distance, which is a principal care of intelligent artists, the following hints may contribute:

If the centre of the perspective system adopted in a composition, be about the middle of a picture, the distance may be shorter than if it was at either side; since before objects become sufficiently remote from it to appear distorted, the picture ends: on the contrary, when the centre is near one side of a picture, a longer distance will regulate objects at the extremes with most advantage.

I see little difficulty in determining geometrically the distance requisite, if what I lately offered is just; for, if to survey a person five feet in height twice five feet is a necessary interval, to double the height of the eye in treating smaller subjects, or by increasing the distance, to suit the apparent dimensions of principal objects in larger pieces, is no great trouble. But unfortunately geometry is an unaccommodating

kind of science, and very adhesive to principles once assumed; therefore, I wish to leave the matter rather to judgment, than to geometry.

Having fixed a height for the eye, and chosen a distance from whence the objects represented in a picture may be most conveniently seen, we proceed to prepare the picture for practice: by which I mean nothing more than inscribing upon it those imaginary lines, to whose properties we have already paid some attention. First rule the horizontal line, then, having determined its centre, erect there the vertical line, and thus we have two lines, whereon all similar planes (*i. e.* horizontal or vertical) will vanish. Moreover, as all horizontal planes vanish on the horizontal line, we have their proper vanishing point in the centre; because, the vanishing point to any plane (in whatever direction) is that point at which a line drawn from the eye, parallel to that particular plane, strikes the picture.

Observe further, that these two planes are of necessity *perpendicular* to each other; I say the horizontal plane is perpendicular to the vertical, and the vertical to that: situation with respect to our natural horizon must now be forgotten, as beside our purpose.

We have already observed, that planes are

in fact of similar construction in every position; therefore, the vertical plane is perfectly correspondent to the horizontal, except in situation, as erect upon it. The center beam of vision is equally parallel to the vertical and horizontal planes, and gives the same point of each (*i. e.* their intersection) for its vanishing point. To demonstrate this, take any perspective example, turn it till the vertical plane becomes horizontal, and you will see evidently that both are governed by one centre, and now the horizontal plane becomes vertical.

Thus far I hope our principles are clear, and luminous: referring you to the examples for certain specimens of their application, I shall now offer a few remarks relative to the introduction and appearance of objects in perspective.

As most familiar to my auditory, I shall re-engage their attention to the mirror for illustrating this particular; its reversion of objects will hereafter appear of no real detriment, or consequence. In fact, whenever geometrical plans of original objects are used (which on many occasions are to learners very convenient), their perspective representations become reverse; but they are not always necessary, as by given situations and dimensions of objects, a master will generally ascertain their representations. To proceed.—

That

That upright looking-glass represents an upright picture; this slab before it, the ground; where the slab touches the bottom of the glass, is of course the ground line. I lay on the slab this square board, close along the bottom of the glass, which, on looking into the glass, I see thus: the slab, and the board, are *parallel* to visual rays direct from the eye to the centre, which rays are *perpendicular* to the glass. Now, the centre being the natural vanishing point of lines perpendicular to the picture, the two perpendicular sides of the board apparently tend to that point. The other two sides of the square being parallel to the picture (the glass in this experiment) have no perspectivity connected with them, except apparent diminution of magnitude as they recede. [By the bye, this want of perspectivity in the parallel sides of a square, obliges us to seek a line which possesses determinate and exact relation to a square, and also to the horizon; this we obtain by the diagonals, whose angular declination from the sides of a square being 45 degrees, gives 45 degrees from the centre, on the horizontal line, for their vanishing point: as is illustrated in the examples.]

But, my chief design in this experiment is, to shew, that the effects we have been noticing arise from the *parallelism* of the visual rays and the ground plane. Now, in design, we cannot cause a variety of planes, and lines, to project  
perpen-

perpendicular from a picture; we therefore transpose their places, by imagining the eye with its system of rays turned upward, and the slab, &c. (*i. e.* all before the ground line of a picture) turned downward; this restores the parallelism, and produces similar effects; so that now a single sheet of paper contains the whole process of perspective lines.

Right lines, having a regular and determinate tendency, are easily put into perspective; and angular figures, being composed of right lines, have little difficulty, since we have accurate *data* to conduct us: but circular or curved lines offer no such *data*, and therefore oblige us to call in assistance from our worthy friends, whose tendency is regular and determinate.

A circle, is a figure so complete and perfect in itself, that it eludes every attempt to discover a point in perspective to which it has any relation. Our best method therefore to obtain the representation of a circle is, by inscribing it in a square of equal diameter, and taking advantage of those points where the two figures correspond; by this procedure we obtain a sketch, or skeleton, of the circle, capable of more or less accuracy, according to the divisions and subdivisions of the original square. Eight points are generally thought sufficient in practice; but more may easily be obtained, if the square is large enough to require them.

Nor

Nor on this occasion only is a square of great utility, a little consideration will find it a very consequential figure; as well because its form is perpetually occurring (as is likewise a circle), as because any other figure thus inscribed in a square, by taking advantage of its intersections and subdivisions, may be represented with little trouble.

When I say a square and a circle are figures perpetually occurring, give me leave to authenticate my position. If we examine objects in the street,—fronts of houses are square, their windows square, their doors square;—those of churches the same; or, at least, squares combined with circles. Their domes are circular, their arches, and so on. The internal parts of edifices, whether for dwelling or ornament, are equally composed of squares;—apartments, and their furniture, tables, chairs, &c. mostly squares: not only so, but many square objects generate circles, as for instance, all which turn upon hinges; the hinge of a door becomes a centre, while the door itself in opening describes a circle on the floor; the flap of a table, bureau, &c. does the same. Architectural columns are evidently compositions of circles, as are many objects which might be named, even to tea-cups and saucers.

By a kind of similar analysis, we reduce a piece of perspective to its first principles. Build-  
ings

ings may be considered, as composed of right lines, crossed by others at certain angles, which united describe solids (or apparent solids), elevated on, or adjoining to, each other; these lines thus describing solids cease at their extremes, and, extremes of lines being mere points, furnish the elements we are to employ.

By inverse procedure we compose the whole; first we find the perspective situation of one point, then of another beyond it; these united make a line: in the same manner other lines may be made; these attached, by degrees become a solid: solids raised on each other, of adjoining to each other, compose buildings; whose extent, how large soever, is merely an addition of solids to solids, and parts to parts, so related, that, having adjusted one part truly, the others are easily determined.

The almost irresistible effect of regularity may be very justly inferred from hence; and not less justly, the necessity of careful beginning, and orderly progression. Perspective, in this respect, is an emblem of life; how many persons have proceeded from a point to a line, from lines to a superstructure, whose termination they did not foresee, when the first line was suggested, or the first point conceded!

Since I have thus introduced analysis, I shall request your attention, LADIES and GENTLEMEN, to a few additional remarks. The perspective,

spective I have the honor to introduce to you, is founded on the doctrine and properties of planes; and planes are more universal than superficial observation may suddenly imagine: we have said they appear around us in the street, and so they do in the parlor; the sides of a room are planes, or parts of planes, likewise the cieling and the floor. What is the superficies of this table but planes? Its face is a horizontal plane; as I let down a flap, that flap becomes an inclined plane: doors are also (vertically) inclined planes, when partly open, or at certain angles to the vertical plane: chairs, when falling, become inclined (or parts of inclined) planes; if we quit the room, so are the stairs, and cieling above them; so are roofs of houses; and all inequalities of hills and dales, in the most extensive prospect.

These principles are more largely explained in the examples, which I beg you not to pass over slightly, but to delineate with care. It has been my endeavour so to select and arrange them, that each naturally leads to its successor; and that they might compose a connected chain of precepts, in which a student may proceed gradually and certainly—

Thought following thought, and step by step led on.

I shall just hint, that it is not always necessary to have on a drawing every line to every point, at once; but after those relating to one object have been drawn with a pencil, and the requisite parts inked in, the pencil lines may be dismissed. In some cases it is scarce necessary to draw lines at all; but, by laying the edge of a ruler from point to point, so much of that line may be taken as occasion requires.

Nor would I advise my friends to draw by perspective process every minutia of a composition, every ornament in a moulding, or every inequality of surface: The principal lines and spaces, if justly inserted, will regulate the inferior; and trifling objects are not worth the time and trouble they waste. Be it always remembered, that the utility of perspective is to deceive the eye of a spectator; and surely an eye and a hand accustomed to inspect and to operate by judicious principles, whose intelligence arises from systematic knowledge, will be very adequate to such deception; always supposing, that the objects in question have been well understood, and that practice has imparted a facility in their delineation: and indeed I may justly assert, that many objects are with more ease and readiness delineated from their originals by an accurate hand, than by the rules of perspective; of which the capitals of columns, especially of the lighter  
and

and more decorated orders of columns, are decisive, but by no means singular, instances.

As in the study of music, notwithstanding an instrument may be very accurately constructed, and very nicely toned, to excel in playing on it requires a good natural ear; improved by attention and practice; so in the arts of design (of which perspective is a principal part), be the rules ever so judicious, clear, demonstrable, and extensive, yet to execute any composition happily and gracefully, requires the guidance of an eye accustomed to observation and remark, exercised in the effects of natural objects, sensible of their most beautiful combinations, and disposed and ready to imitate them: thus accomplished, it may justly hope, not only to apply with facility the principles of science and taste, but

“ To snatch a grace BEYOND THE RULES OF ART.”

I offer these hints, LADIES and GENTLEMEN, because I wish to divest this study of incumbrance: I am no friend to operose diagrams, and radii of lines, which render difficult and complex what is easy and clear. I rather desire to arrange and simplify intricacies, in which undertaking I have to request your candor; and, if success crown my endeavours, I have to expect your applause.

## O B S E R V A T I O N S

*On the plates belonging to LECTURE II.*

**I**N the following plates, it has been endeavoured to preserve an uniformity of references and marks, in order to inform the spectator, at first sight, which are the principal lines and points made use of. Thus I means the place of the natural Eye, which is transposed according to the principles adopted in page 46. H L is used to mark the Horizontal Line, C denotes the Center, and the bottom of each example is the ground line.

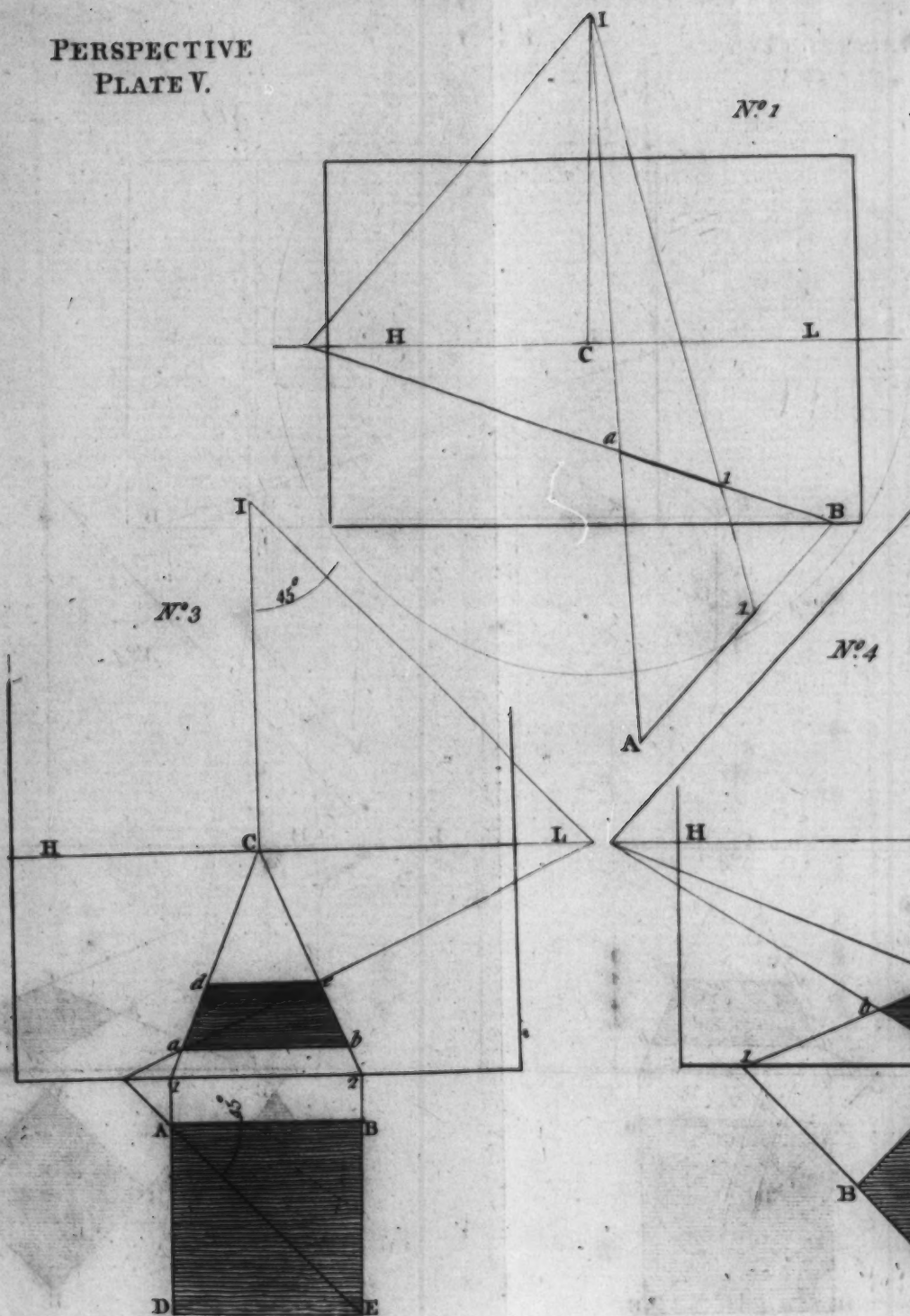
It is further to be noticed, that the distance is generally too short, throughout these examples, for objects situated *laterally* (in order to avoid the multiplication of plates); as by this management they contain a greater number of objects, and equally distinct: for the same reason, the examples are drawn on the horizontal plane; but it will be very advantageous to the student to turn them, and to accustom himself to view and delineate them in various positions, as their construction is precisely the same. By this method, every example may become as useful, as two, or three.

It is obvious to remark, that all figures put into perspective by means of geometrical plans are *reverse* from the original plan: this reversion is easily accommodated to truth, by changing the position of the plan, by which means all confusion is avoided. Perspective plans may be formed without the geometrical figure, by given measures, and angles.

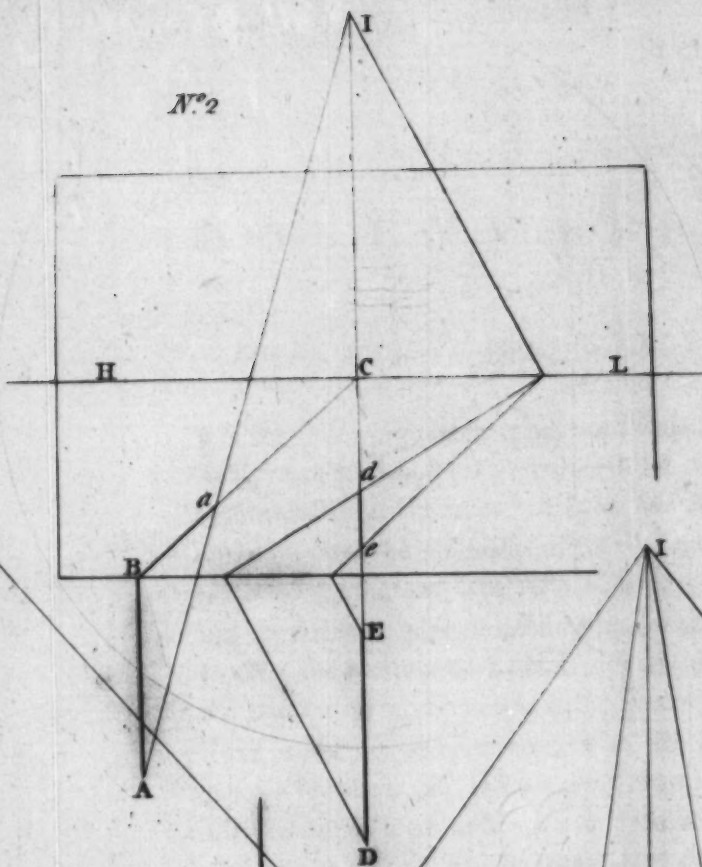
PLATE



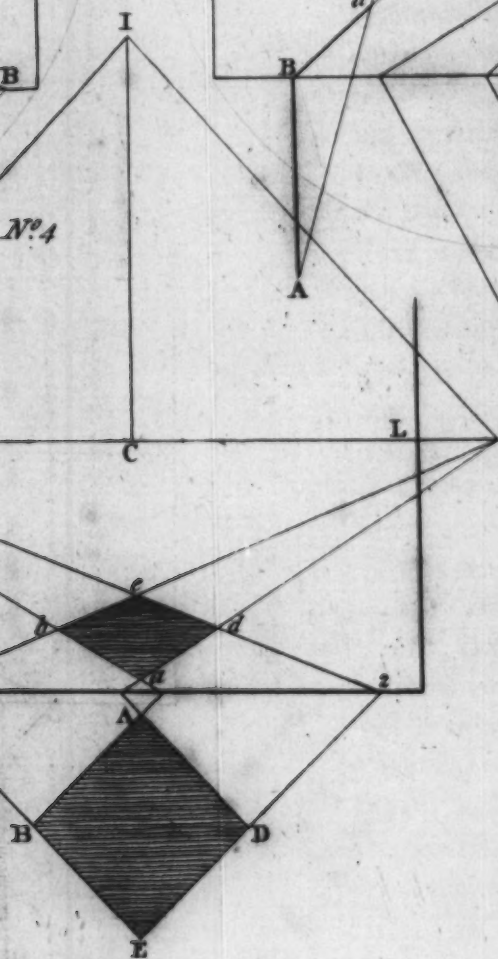
PERSPECTIVE  
PLATE V.



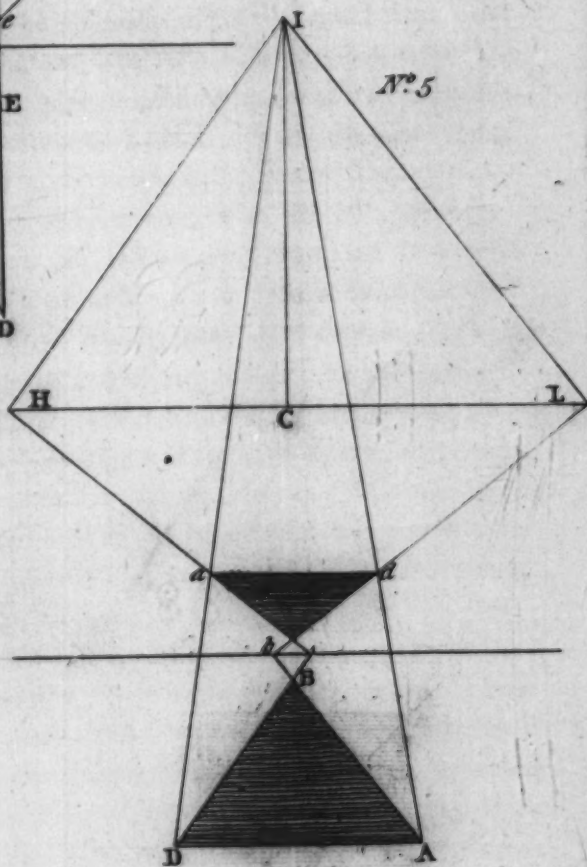
N<sup>o</sup>2



N<sup>o</sup>4



N<sup>o</sup>5





P L A T E V.

No. I. This example shews the method of putting into perspective a RIGHT LINE, as A B; or part of a right line, as A I; or a simple point, as A. Having placed (H L) the horizontal line, and determined the center (C), and the distance (C I), I is the transposed place of the natural eye. If A be considered as a point, unite it to the ground line, by a right line, in any direction at pleasure (as at B); rule from I a line, parallel to this line, towards H L (as, near H); then is the point where it strikes H L the vanishing point to A B; unite B to this point by a line, in some part of which line will the representation of A be found. To ascertain its exact place, unite A to I: the intersection of the two lines marks the spot, as at A. It is evident that the line A I may be determined by treating the point I as we have already treated the point A; which will give its seat on the line B H at i. The representation of the whole line A B is equally readily found, as appears by the figure.

The direction of the original line is of no consequence, or effect; in every direction its parallel from I must be drawn to H L.

No. II. Is a variation from the former example, by supposing the original line to be *perpendicular* to the picture. The principal systematic lines are as before. In this case, as the line A B or D E would naturally vanish in C (which is its parallel), we are concerned only to determine its length; this is obtained in A B  
by

by uniting A and I; the intersection gives B *a* for the length of B A: but as D I, if united, yet continues a mere line, we must find others to cut off its proportion. Unite E to the ground line, by a line in any direction, and by a parallel line unite D; then by a parallel from I to H L we obtain a point, to which when the intersections of D and E on the ground line are united, they give *d e* for the representation of D E.

No. III. A SQUARE is composed of four sides, two perpendicular to the other two: if supposed to be situated with two sides parallel to the picture, it is evident that the two other sides will be perpendicular to that picture. These may be considered as two lines (placed as in the foregoing example), which naturally vanish in C, to which therefore unite them: to determine their lengths seen in perspective, rule a diagonal line from the opposite corners of the original square, which line unite to the ground line; rule its parallel from I to H L, and unite its seat on the ground line to that point in H L so procured; its intersections will cut one line of the two drawn to C in its nearest part, and the other line in its furthest part from these intersections: lines parallel to H L will complete the figure. *E. gr.* A B D E is an original square; produce A D and B E to the ground line; these vanish in C: produce also A E to the ground line; this vanishes in its parallel I L, and gives *a d b e* for the representation of A D B E.

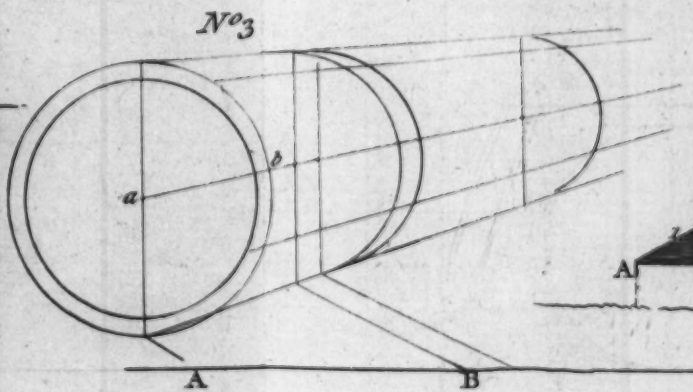
N. B. The diagonal of a square being naturally 45 degrees, if an angle of 45 degrees be made from I and continued to H L (as at L), it will give L for the vanishing point of such a line, without the necessity of recurring to the original figure.

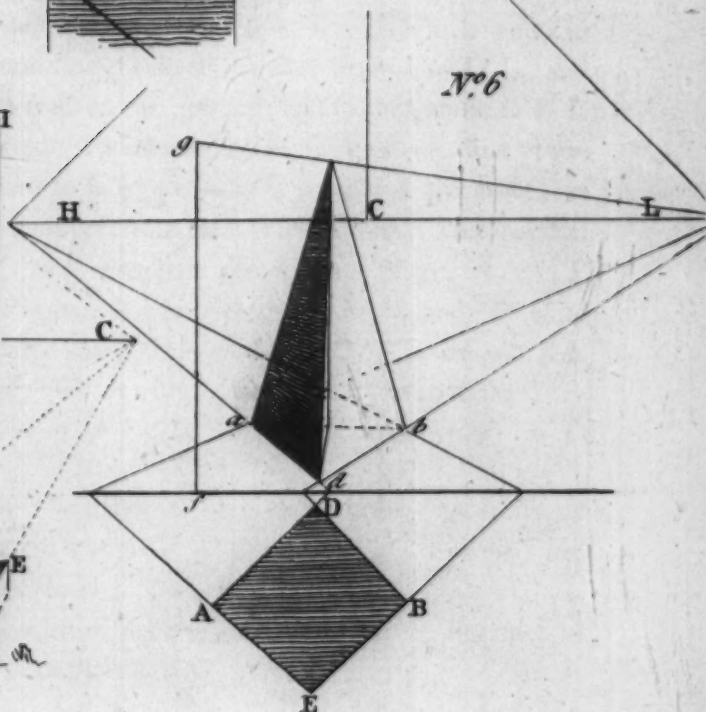
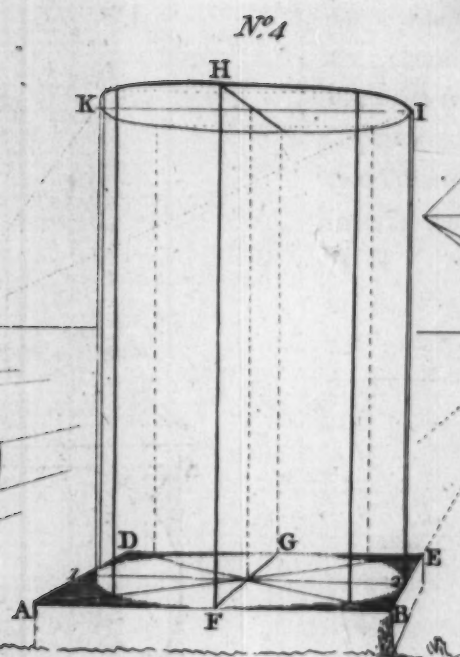
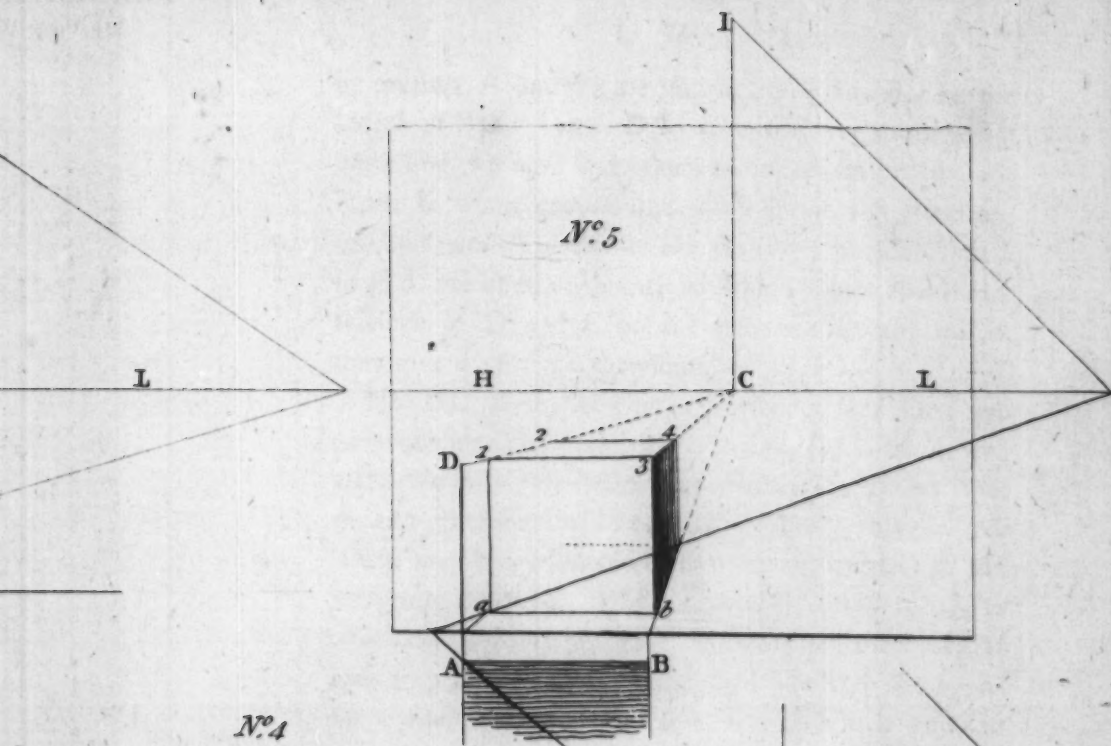


PERSPECTIVE  
PLATE VI.

The image contains three perspective drawings of geometric solids, labeled N°1, N°2, and N°3.

- N°1:** A pyramid with a hexagonal base. The base is shaded with horizontal lines. The apex is labeled 'I'. The base vertices are labeled 'A', 'B', 'C', 'D', 'E', and 'F'. The base is divided into two parts by a horizontal line 'G'. The top part is labeled 'a', 'b', 'c', 'd', 'e', 'f'. The bottom part is labeled 'g', 'h', 'i', 'j', 'k', 'l'. The pyramid is shown in a perspective view from above.
- N°2:** A hexagonal prism. The top and bottom hexagonal faces are shaded with horizontal lines. The top face vertices are labeled 'a', 'b', 'c', 'd', 'e', 'f'. The bottom face vertices are labeled 'g', 'h', 'i', 'j', 'k', 'l'. The prism is shown in a perspective view from above.
- N°3:** A cylinder. The circular end faces are shaded with horizontal lines. The top face is labeled 'a' and the bottom face is labeled 'b'. The cylinder is shown in a perspective view from the side.







No. IV. Represents a square lying *obliquely* to the picture: continue the sides E B E D to the ground line, at 1 2, and also the sides B A, D A; find the vanishing points on H L by lines from I, parallel to E B and E D; the seats on the ground line (1 2) of the original figure united to those points, give *a b d e* for its representation.

No. V. Is a TRIANGLE in perspective: it is obtained by uniting two of its sides, D B and A B to the ground line; lines parallel to these originals, drawn from I to H L, give the vanishing points of those two sides; to which points rule their interfections on the ground line, which give *b d* for their length; a line parallel to H L completes the figure, and gives *a d* for the representation of A D. The veracity of this process is *proved*, by uniting D and A to I, which equally gives *a d*.

For the greater facility of inspection, the principal systematic lines throughout this plate are similar in each example.

## P L A T E VI.

No. I. Is the process of putting into perspective a PENTAGON, and is in its operation precisely the same as former figures. A D E B F is an original figure; unite the various sides to the ground line (as A D at 1; E B at 2; and A F, B F as near F): parallel to D A 1 draw from I, I K; parallel to E B 2 draw from I, I J; draw likewise from I parallels to A F and to B F. The various seats of the original lines on the ground line, drawn to their respective vanishing points, form the figure. *E. gr.* 1 to K gives *a d*; 2 to J gives *b e*; and

and so of the others : a line from  $d$  to  $e$ , parallel to  $H L$ , completes the process.

In treating a square, No. 3. Plate V. we observed, that if an angle of 45 degrees had been made at  $I$ , it would have given the same points for vanishing points as the formation of an original angular line does. In the same manner, the points for a regular pentagon, and for any polygonal figure, may be found according to the following TABLE.

<i>Sides.</i>	<i>Angles at the centre.</i>		<i>Angle made by the sides.</i>	
4. A square makes an angle of $90^{\circ}$			—	$90^{\circ}$
5. A pentagon	—	72	—	108
6. An hexagon	—	60	—	120
7. An heptagon	—	$51\frac{3}{7}$	—	$128\frac{4}{7}$
8. An octagon	—	45	—	135
9. A nonagon	—	40	—	140
10. A decagon	—	36	—	144
11. An undecagon	—	$32\frac{8}{11}$	—	$147\frac{3}{11}$
12. A duodecagon	—	30	—	150

The angle at the centre of a regular polygon is found by dividing 360 by the number of sides : thus 360 divided by 5, gives 72 degrees for the angle at the centre of a pentagon : 360 divided by 6, gives 60 degrees for the angle at the centre of an hexagon. But the angle made by the two adjacent sides of a polygon is found by subtracting the angle at the centre, from 180 degrees ; thus from 180 take 72, there remain 108 degrees, which is the angle made by the sides of a pentagon : if from 180 we take 60, there remain 120 degrees, for the angle made by the sides of an hexagon, and so of others.

No.

No. II. Shews the readiest method of putting a circle into perspective: first form the square A D E B round the circle, which it touches in four points; each angle of the square is bisected, by ruling, through the centre of the circle, diagonals to the opposite corners: where these strike the circumference of the circle, rule lines parallel to A D, and B E: thus we have four additional points; unite the original lines to the ground line, and likewise one of the diagonals, as at A: these prolonged to their vanishing points will give for the seat of the circumference of the circle, first, the sides of the square; secondly, four additional points (1, 2, 3, 4, corresponding to the same numbers in the figure) indicated by the intersections of the transverse lines: these eight points united carefully will describe a circle. It is obvious to remark, that the same eight points would represent an octagon, if united by right lines instead of circular.

No. III. Represents the effect of circles when parallel to the picture, and is an advance toward the treating of solid bodies in perspective: C is the centre; C Y the horizontal line: the distance is somewhat more than double C Y, and may be conceived as placed at the other extremity of that line, but is omitted in the plate, and its half distance marked: on the ground line at A and B are placed the distances between the circles; first, ascertain the seat of the cylinder, which rule to C; then rule A and B to their vanishing points: at the intersections of A, with the seat of the object, raise a perpendicular; and, taking the proposed diameter of the circle, strike the circumference from *a*: rule *a* to C; and on this line will be situated the centers of every other circle, as appears at *b*, &c.

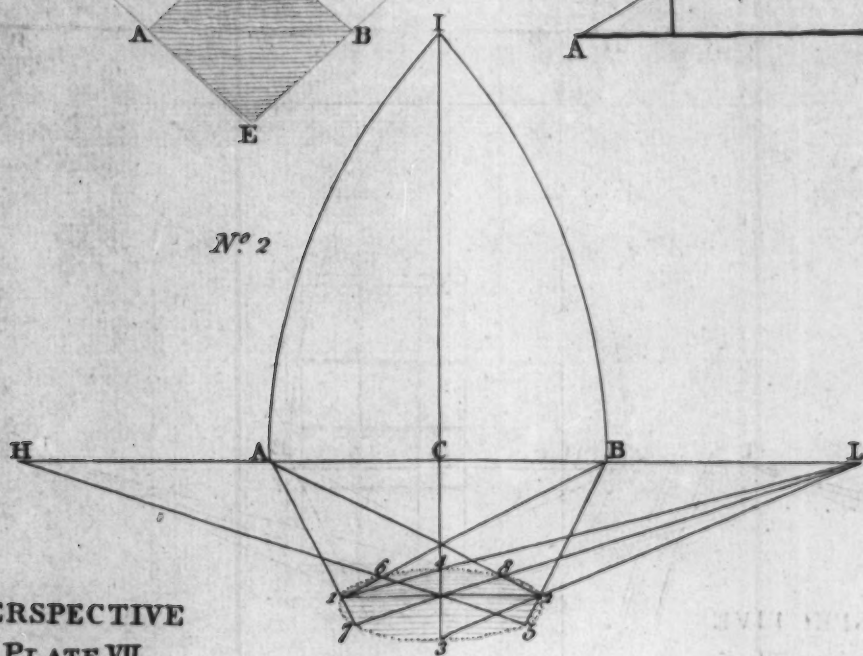
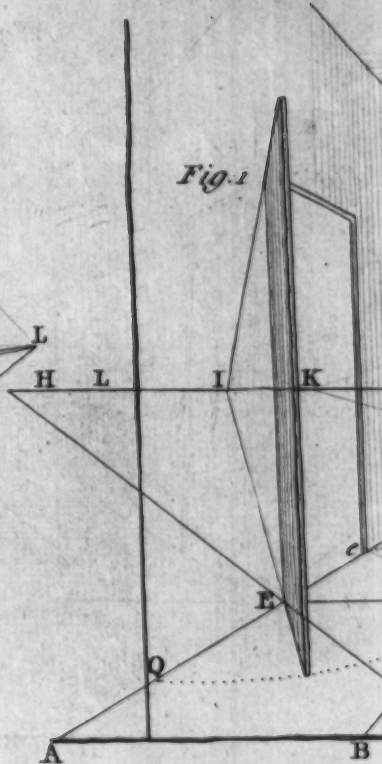
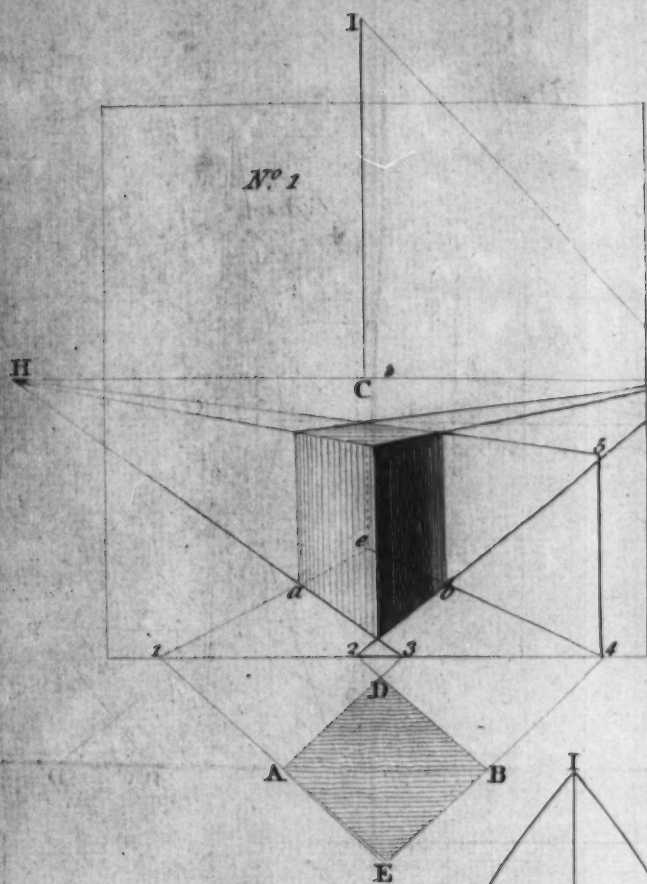
No. IV. Explains the representation of a cylinder standing erect, the points as before. We may here observe, that as a cylinder is nothing more than two circles united by right lines, so to put this figure in perspective, form first the inferior circle (by No. 2, if you please); then erect perpendiculars, and form the superior circle by the same method: this example may likewise be performed, from having only a single line given as a diameter, as  $1\ 2$ ; which see further illustrated in No. 2, plate VII.

No. V. Shews how to represent a solid square, or cube: and is performed by finding first the perspective seat of its plan; vide No. 3, plate IV. which gives  $ab$  for the seats of  $A\ B$ . On the ground line erect the proposed height of the object, as at  $D$ , which unite to  $C$ : then at  $a$  and  $b$  erect perpendiculars, which will be cut by the line  $D\ C$ , at their proper height, and form the nearest face of the square, as at  $ab\ 1\ 3$ : the furthest face of the square is found by the same means; and the top of it, by ruling from the intersections with  $D\ C$ , lines parallel to  $H\ L$ , as  $2\ 4$ , and  $1\ 3$ , to complete the figure.

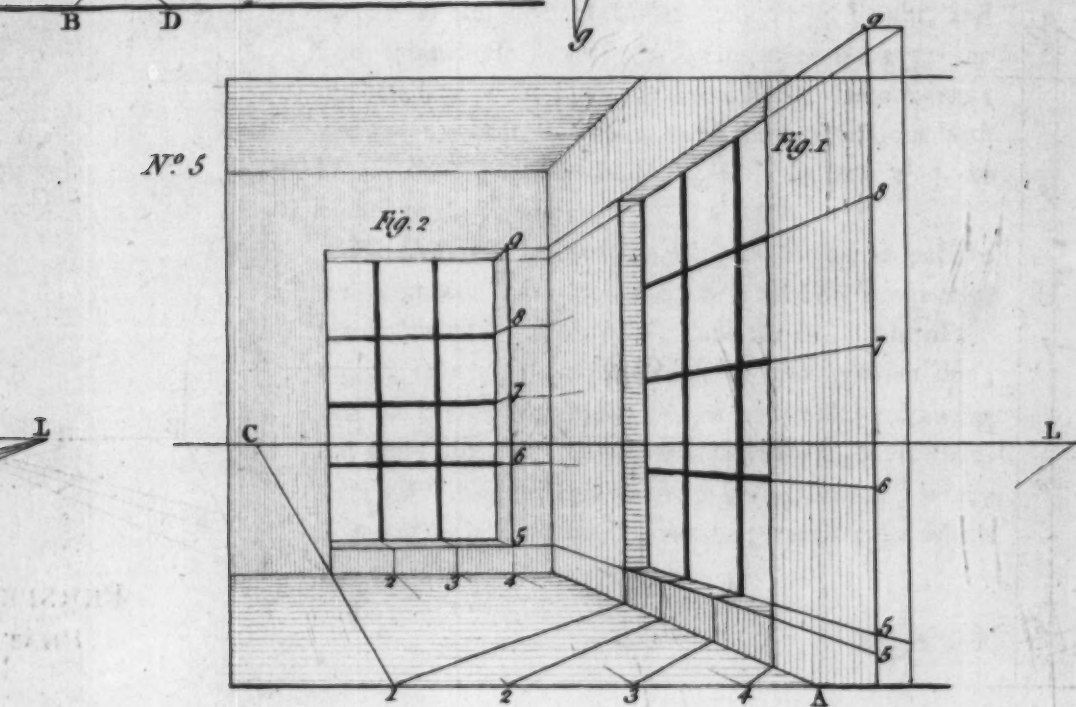
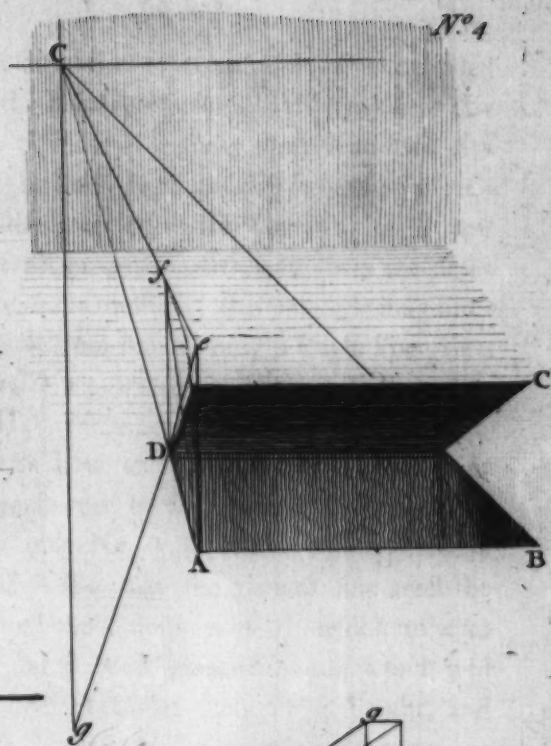
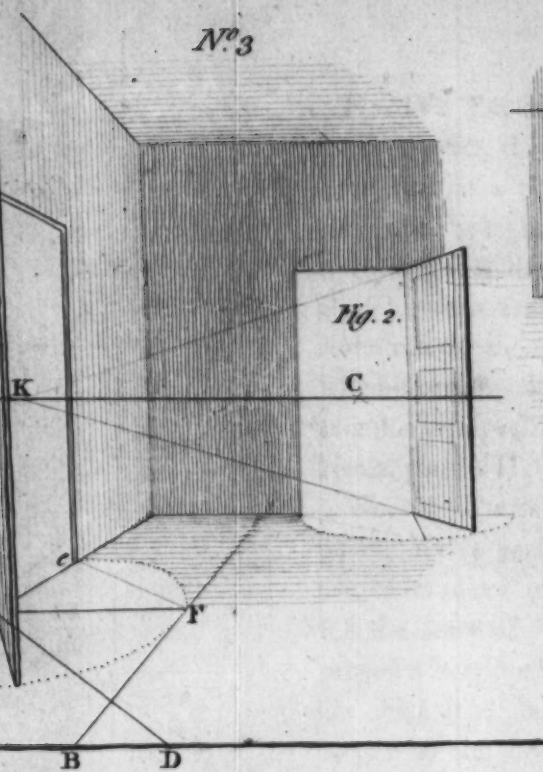
No. VI. Illustrates the principles of the perspective representation of a pyramid: first find its perspective plan; vide No. 4, plate IV: and for the height of the object, take  $fg$  perpendicular to the ground line; find the center of the plan of the pyramid, by drawing the cross line  $ab$ ; then draw  $d$  towards  $C$ , till it intersects  $ab$ : raise on this center a perpendicular: where it is cut by  $g\ L$  is the top of the pyramid; to which rule  $ab\ d$  to complete the figure.



PLATE II  
PERSPECTIVE



PERSPECTIVE  
PLATE VII.





## PLATE VII.

No. I. Is a cube in perspective, standing oblique to the picture: first find its perspective plan, as in No. 4, plate IV; erect perpendiculars from its extremes; draw 5 H, which gives by its intersections part of the top; from L draw lines through these intersections, which by cutting the remaining perpendiculars complete the figure. Observe, that when the square stood fronting, as in No. 5, plate VI. the height was ruled to C, the center; but when it stands oblique, the height is ruled to the vanishing point of the sides.

A cube, like a cylinder, is composed of two similar faces united by right lines, and therefore may be considered as being two perspective plans of the same figure at different heights, connected together; and the same idea may be attached to various polygonal figures.

No. II. Is a circle put into perspective by means of its given diameter 1 2: the systematic lines as usual. Set one foot of the compasses in H, and with the opening H I, strike I B: then with the opening L I, strike I A: through the middle of 1 2, draw a line from C, likewise another from H, and another from L: then the points which form the circumference are thus found; 1 and 2 are already given, as the original diameter: 3 is found by drawing L 2, which cuts the line 3 C in 3; 4 is found by drawing L 1, which cuts the line 3 C in 4; 5 is found by drawing B 2, which cuts the line 5 H in 5; 6 is found by drawing B 1, which cuts the line 5 H in 6; 7 is found by drawing A 1, which cuts the line 7 L in 7; 8 is found by drawing A 2, which cuts the line 7 L in 8; the points thus procured, must be carefully united: this

this method serves for an octagon also; and is the readiest way to represent circles within others.

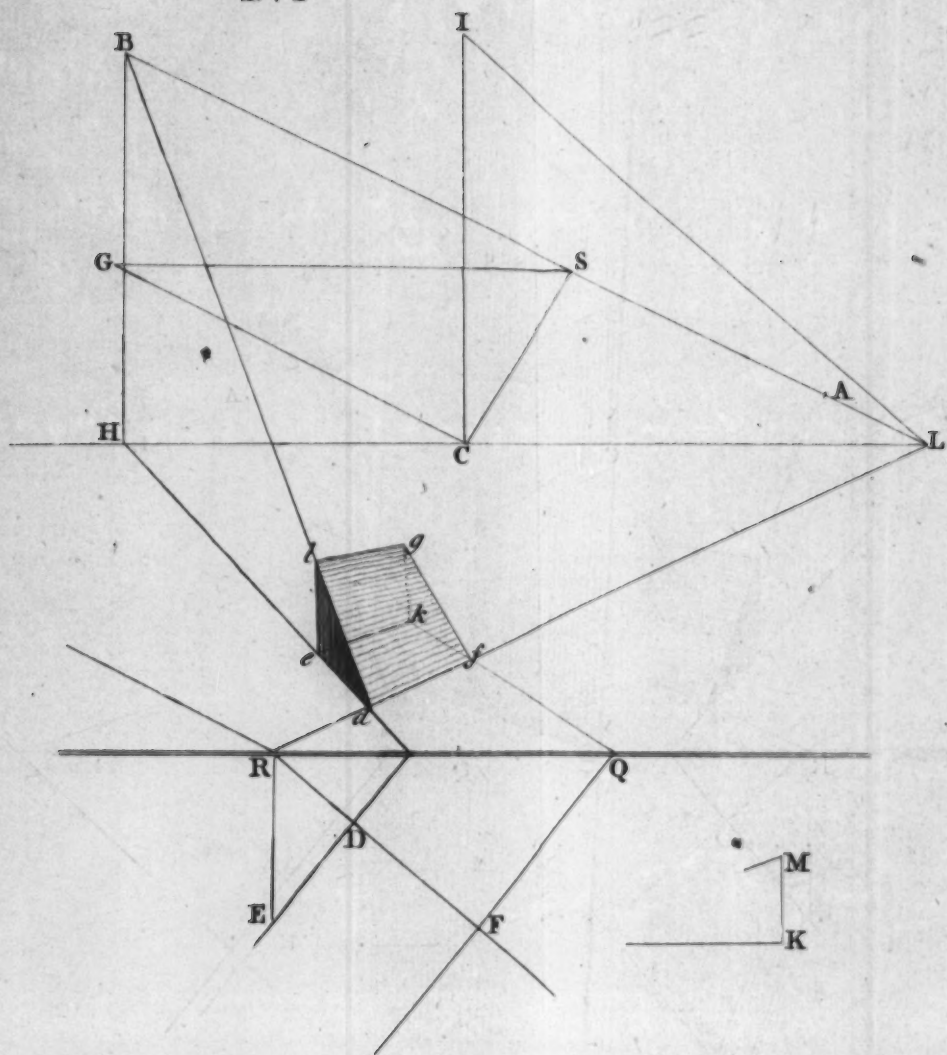
No. III. Supposing these examples sufficient to explain the manner of treating solid bodies, &c. we proceed to shew the nature of other objects. It has already been observed in LECTURE II, that every rotatory object forms circles at its circumference, of which the hinge is the center: on this principle are the doors in this example put into perspective. Fig. 1. C is the centre, H L the horizontal line; the breadth of the door is marked on the ground line, as A B; and A D is the depth it must be in the room. Draw D H, cutting A C in E; draw from E, a line parallel to the ground line, as E F; which is cut by B C in F, and determines the width of the door at that part (suppose half open); F ruled to H will give *e* for the edge of the door, if supposed shut: the semicircle on the floor is formed by the ordinary methods. From the bottom of the door E, to the circumference of the circle, gives the situation of the door: the same line continued to H L gives its vanishing point, as at I: perpendiculars from the bottom of the door, and its edge, are cut by a line from I, to determine its height. In Fig. 2. the door is seen open somewhat differently: the same process gives K for its vanishing point; as is clear by the figure.

No. IV. Is a representation of a trap-door in the floor: A B its breadth: which of course is the front of the aperture. The door C, and its hinge D, are found exactly as the same parts in the foregoing figures; *g* is one vanishing point for the quarter of a circle, corresponding to the square A D *e f*. If this figure, or those of No. 3, are turned, and viewed sideways, they mutually illustrate each other.



PLATE VIII.

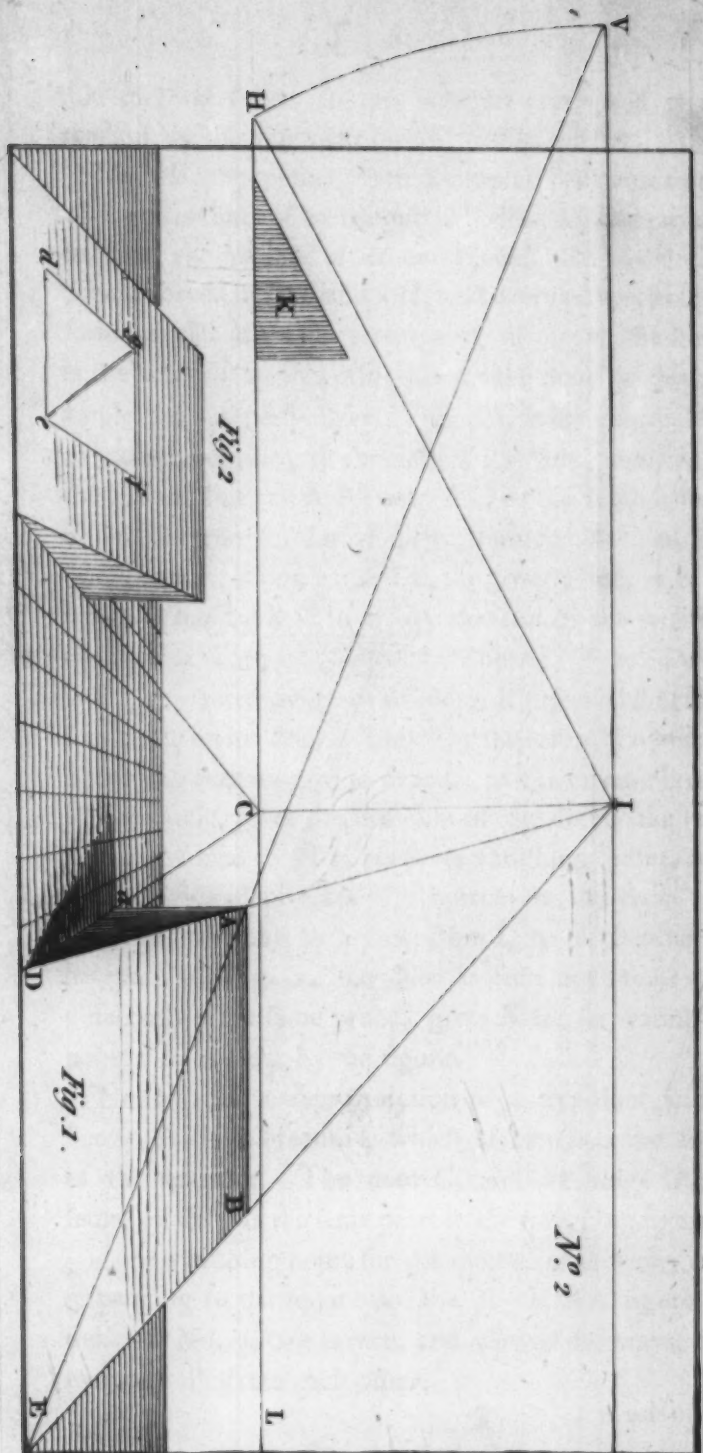
*Nº 1*



TIVE.

III.

L





No. V. Shews the inside of an apartment: C the center, L the horizontal line; the windows are placed according to measures given, and set off on the ground line A. 1 2 3 4 refer to the distances of the window panes, &c. and being ruled to L, cut the line A C, at the proper places, from whence perpendiculars being raised, the wall of the window is found; the panes being supposed at the outer edge of the wall, require the continuation of the lines 2 L, 3 L, cross the window sill 5, 5; the upright measures, 5 6 7 8 9, determine the heights of the various parts, not only in the nearest wall, but (being ruled to C) in the furthest, by their intersection with it; to which 5 6 7 8 9 are parallel, The lines are continued cross the window sill for the panes, as before; and their distances from each other are regulated by the original measures on the ground line, drawn to C, as appears at 1 2 3 4. All measures for horizontal objects must be placed on the ground line, or on a line parallel to it; and those for vertical objects, on an upright line.

## P L A T E VIII.

No. I. As all horizontal and vertical planes, and objects, in every situation, however diversified, follow the rules already laid down; we presume what has been said may suffice to explain the method of representing them in perspective; we proceed now to illustrate the nature of planes not perpendicular, or parallel, to the picture, but *inclined* to it.

In this example, C is the center of the picture, C I its distance, H L the vanishing line of the ground plane R Q. The line above R marks the inclination of the plane to be represented, with the picture (and is here

supposed 70 degrees). Through C, draw C G, parallel to the line above R, and of equal length to the distance C I; perpendicular to C G, erect C S; through S, draw A S B parallel to C G; this is the vanishing line for the plane proposed, S its center, and S G equal to its distance.

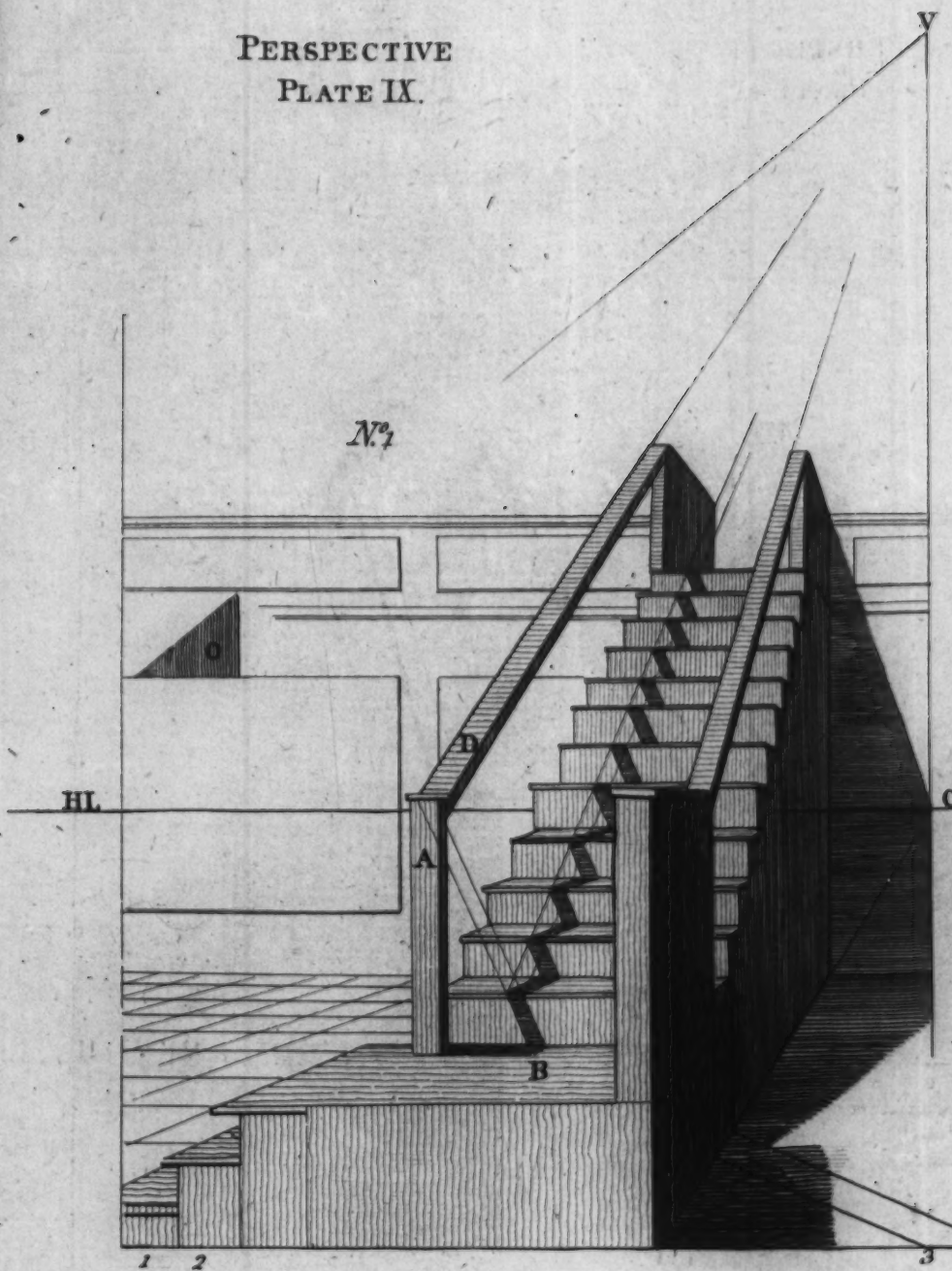
This object has faces in three various inclinations; first, that lying on the ground, which accordingly vanishes in the vanishing points to the ground, as *d f* and *e k*; secondly, other faces perpendicular to the ground, as *e k l g*; thirdly, an inclined face not parallel to either, as *d f l g*; which is our immediate object. E D F is an original plan, whose lines being continued strike the ground line in R, and Q, &c. Rule R to L, being coincident with the ground plane; and Q and its parallel to H; by which we obtain *d f* for the representation of D F: and by the same means, we obtain *e k*, which now completes the perspective plan of the object. From *d* draw *d B*; from *f* draw *f B*: erect on *e* a perpendicular, which cuts *d B* in *l*: and from *l* rule *l L*, cutting *f B* in *g*; which completes the figure.

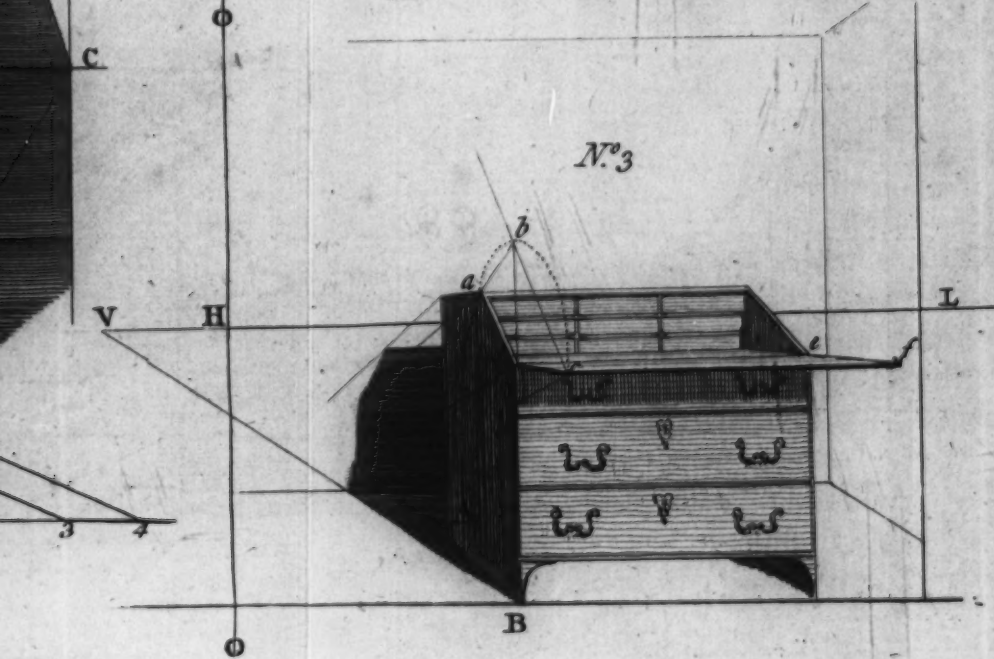
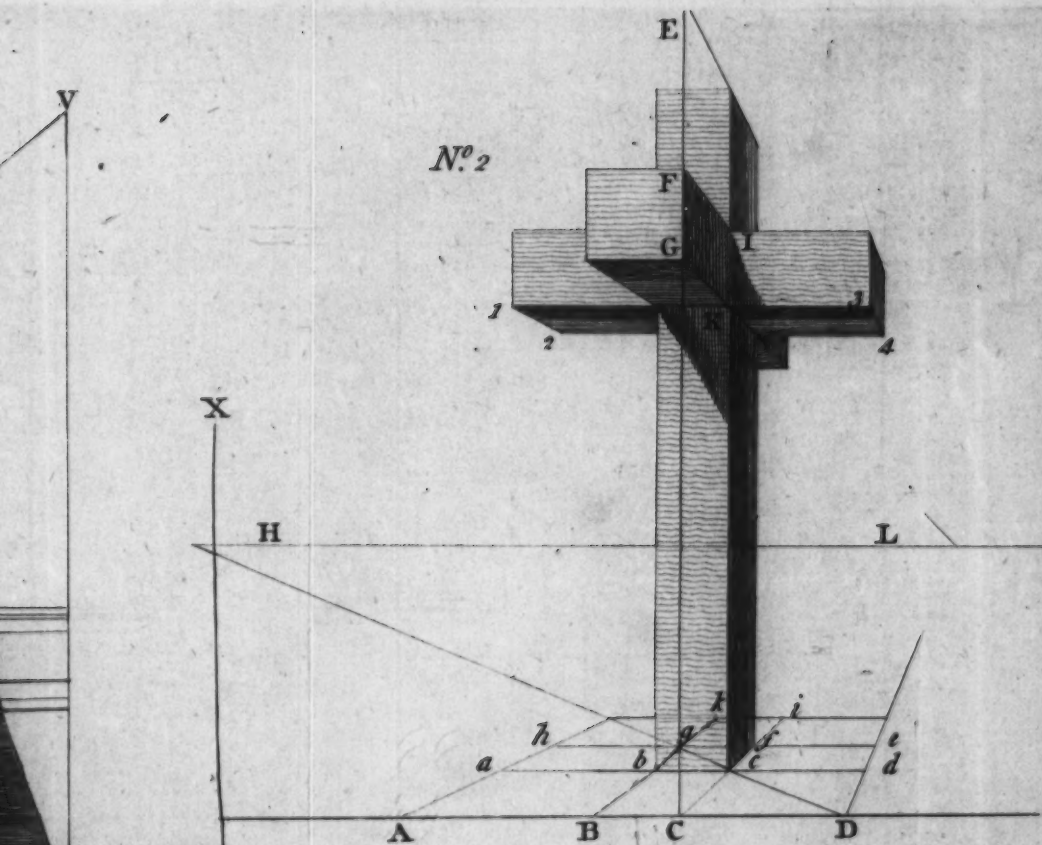
M K Shews the side-elevation of this object.

No. II. Figure 1. Represents an inclined plane, one side of which is parallel to the picture: erect on the center a perpendicular at pleasure; and at H, form such an angle as the plane to be treated is supposed to make; as at K. Rule a line in that direction from H, till it intersects the perpendicular from C, as at I: through I, rule a line parallel to H L, as V I; which being the vanishing line to the plane, governs its perspective. To I (its center) rule D and E; to C, the center of that part coincident with the ground, rule D C; on *a* erect a line, which cuts D I in A; from A, a line parallel to



PERSPECTIVE  
PLATE IX.







to H L completes the figure ; or A may be found by its proper diagonal (being a square) ruled to V, its vanishing point, as appears by the figure.

Figure 2 is a similar example, and the square *edgf* is found as squares in general: V.I being its vanishing line.

## P L A T E IX.

No. I. Is an application of the foregoing principles to a natural object, and represents a flight of stairs in perspective: C is the center of the horizontal line ; O is the angle made by the ascent of the stairs ; and gives V for the transposed center, to which the inclined lines are ruled. The measures of the stairs are set on the ground line, as 1 2, and 3 4. The shadow of the rail D is found by taking A B as a ray, to which all shadows that fall on the uprights of the stairs are parallel ; those which fall on the horizontal parts of the stairs follow their direction, and vanish in C.

No. II. Is a double cross in perspective: A B C D is the ground line, on which the thickness of the upright is to be marked, as B C ; and the extent of the cross bar, as C D : these measures are ruled to L (the center in this example), and by the diagonal D ruled to H, form a square, which is the plan of the figure. On C erect a perpendicular to receive the measures for the upright, as G F, and E ; from the intersections of the plan, raise perpendiculars for the upright, as from *b c f* ; where these are cut by the measures G L, F L, and E L, rule horizontal lines for the situations of the bars, whose lengths are determined by perpendiculars from the plan below : thus 1 2 are governed by *a b* ; and 3 4, by *d e* : the figure distinctly describes the whole.

No. III. Is a representation of a bureau, with the flap open; which is much the same as the trap door, No. 4, Plate VII.:  $e$  is its hinge,  $f$  its edge,  $abc$  the circle it forms in opening,  $OO$  on the line  $OX$ , two points which assist to draw the circle by;  $X$  the distance of that circle:  $A$  is one side of the bureau perpendicular to the picture; and  $B$  the ground line.

## P L A T E X.

No. I. Figure 1, Represents a prism (one of whose sides is perpendicular to the ground) resting on an inclined plane: This figure is an advance on No. 2, Plate VIII.  $C$  is the center of  $HL$ , the horizontal line;  $Z$  is the original plane, and  $Y$  the prism standing on it. Draw through  $C$ , a line perpendicular to it, as  $VC O$ : place the prism  $Y$  at the point of distance  $H$ , and rule lines equal to the angles it makes, to  $O$  and to  $V$ ; through these points,  $O$  and  $V$ , draw lines parallel to  $HL$ , which thus become vanishing lines to its upper and under faces. The surfaces of  $Z$  and of  $Y$  being parallel, have the same vanishing point ( $O$ ). The plane  $B$ , Figure 1, follows exactly No. 2, Plate VIII. take  $g b$  for the seat of  $A$  on  $B$ ; from  $V$  draw  $Vg$ ,  $Vb$ , beyond  $g$  and  $b$ ; and by the diagonal  $Ng$  prolonged beyond  $g$ , cutting  $Vb$  in  $b$ , we obtain one termination of this face, which is completed by ruling  $ab$  parallel to  $gb$ : rule for the other face  $aO$ ,  $bO$ , which, cut by the diagonal  $bK$ , will give  $cd$  for the termination of the other face; or, it may be found, by erecting a perpendicular from  $g$  to  $c$ , and drawing  $cd$ .  $ef$  on the ground line mark the width of  $A$ .

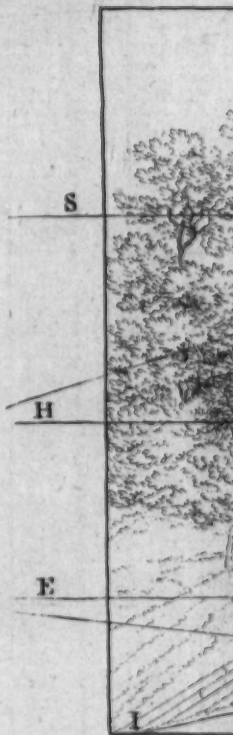
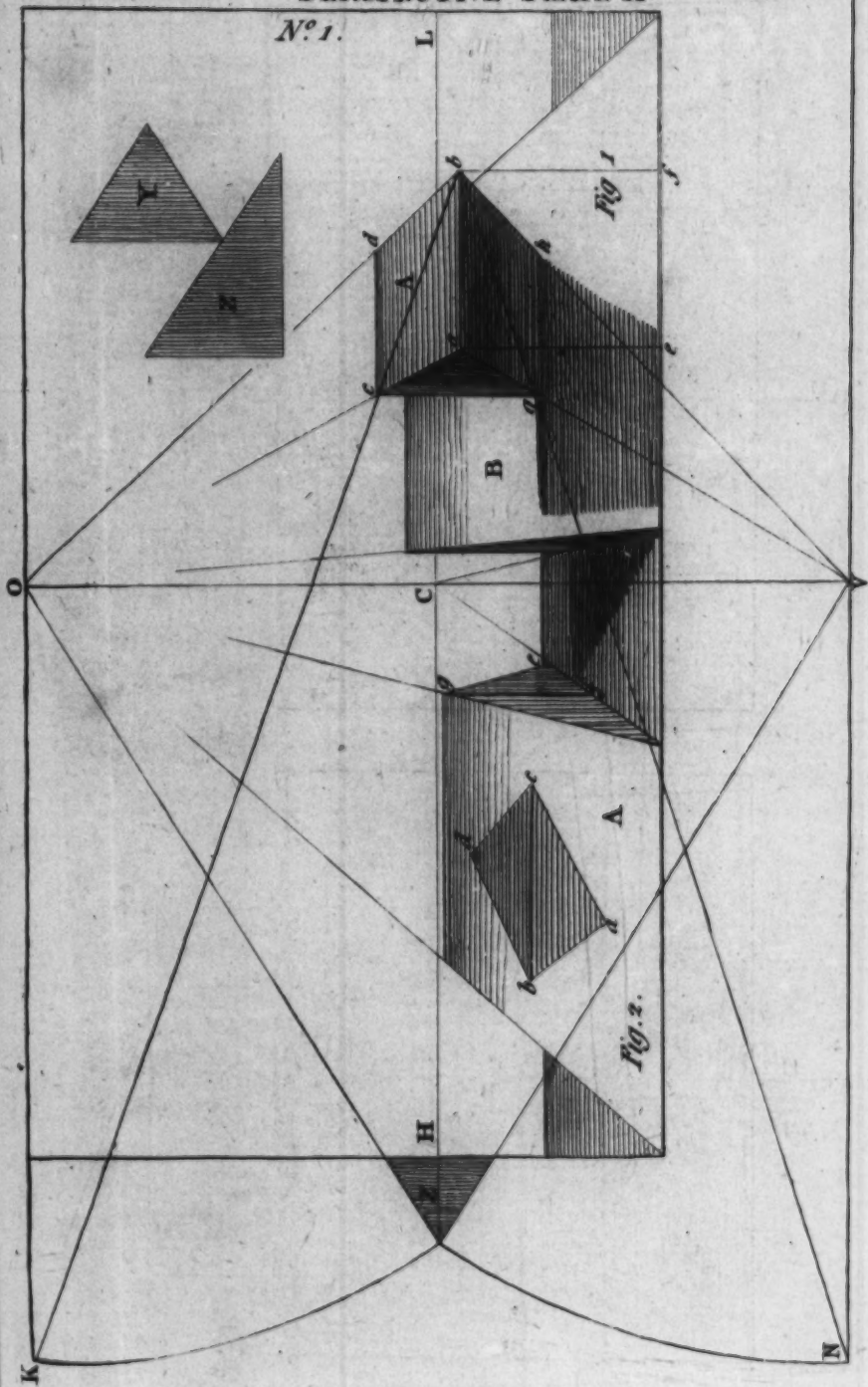
In Figure 2, the plane  $A$  is constructed in a similar manner with  $B$  in Figure 1.  $eg$  vanishes in  $V$ ; and  $f$  de-

notes

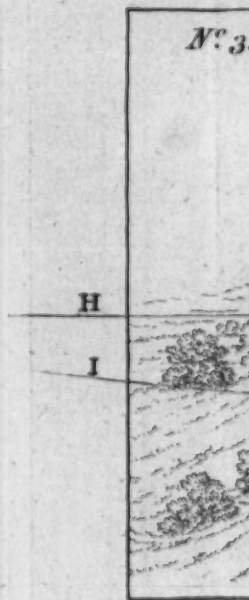


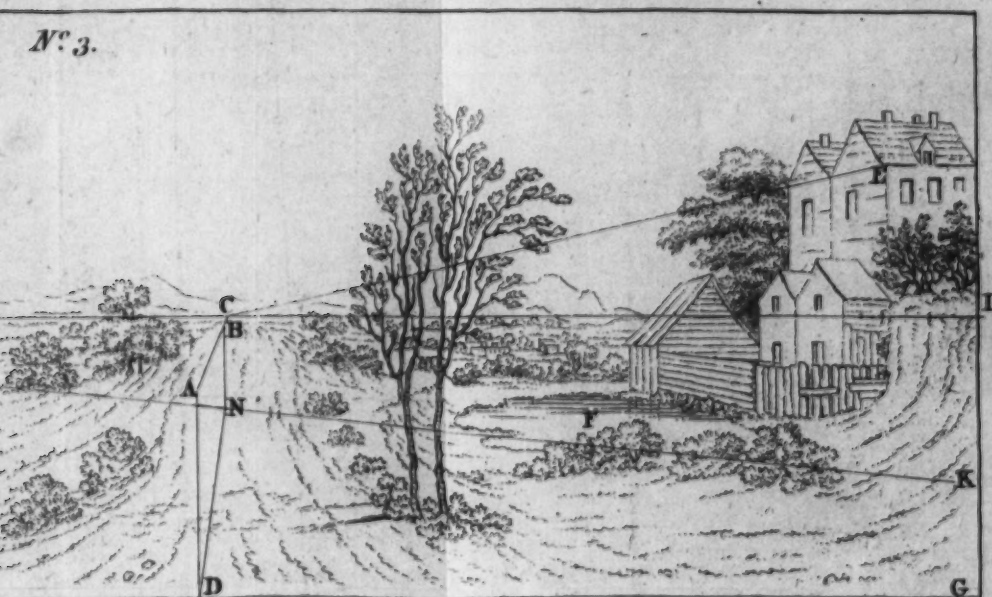
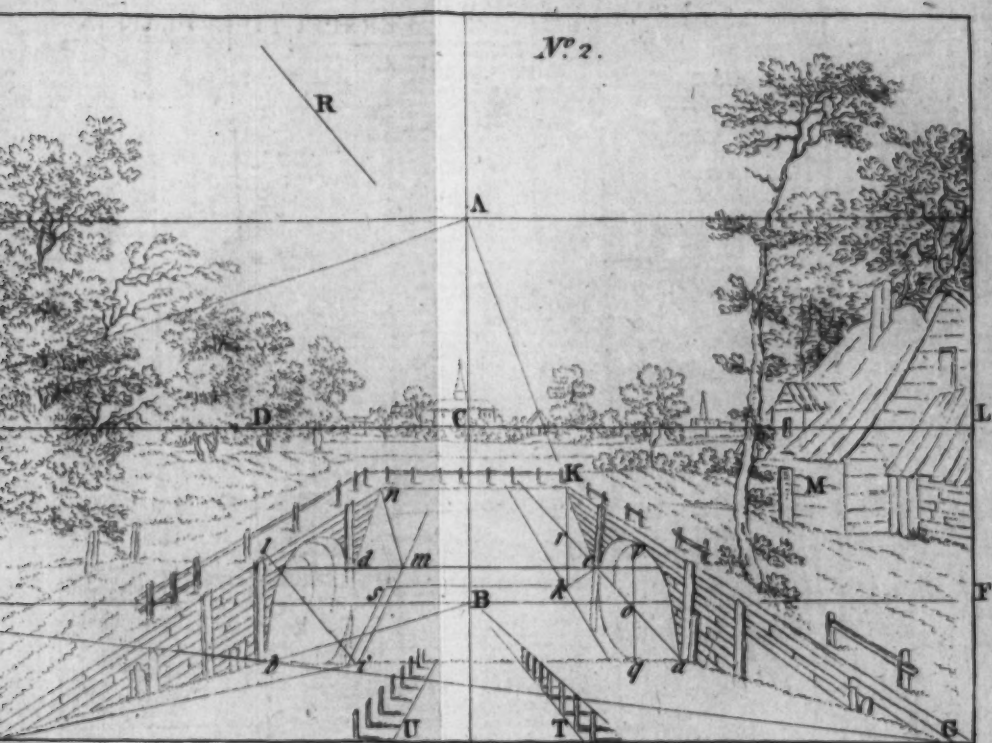
# PERSPECTIVE PLATE X

N<sup>o</sup> 1.



N<sup>o</sup> 3





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notes the middle of the object:  $a b c d$  is a square lying oblique to A; whose sides  $a b$ , and  $c d$ , vanish in K: and  $a c$  and  $b d$  in a corresponding point on the other side O.

No. II. Is an application of the principles and management of inclined planes to landscape: in this example, we have a flat country, intersected by a descent ( $I b a G$ ) and a rising ground ( $d n K c$ ). For the flat country, H L is the horizontal line, and C the center. E B F is the vanishing line of the descending plane (consequently below the horizon), B its center, L B its inclination. S A is the vanishing line of the ascending plane (consequently above the horizon), A its center, H A its inclination. First dispose of the flat country, by drawing I C, G C, the house M (whose vanishing point is D) &c. Then for the descending plane, draw I B, G B; a diagonal from G to E gives  $b$  for one termination of this plane, which is completed by a line ( $b a$ ) parallel to I G. The posts U T, and their shadows, all vanish in B. For the ascent, take  $d c$  as a ground line, and rule  $d A$ ,  $c A$ , cutting I C in  $n$ , and G K in K. The water is of necessity horizontal, and therefore vanishes in C.

To find the point  $k$  in the water ( $a o$  being its surface), draw the perpendicular K  $k$ , and  $a C$ , cutting it in  $r$ , which is the seat of K on the water; make  $r k$  equal to  $v K$ , for the reflection of K in the water:  $q$  is the reflection of  $p$ .

The shadows are cast by the sun supposed to be parallel to the picture, in the inclination R; parallel to which, draw  $l i$ , and parallel to H L draw  $b i$ ; unite I  $i$  for the shadow of I  $l$ : to continue the shadow on the water, draw  $i C$ , which is cut by the bank at  $m$ ; unite  $m n$ , which completes the shadow of I  $l n$ .

No.

No. III. Is another application of these principles to landscape: C the center, H L the horizontal line, D G the ground line, D A the height of the rising ground, if it was situated on the ground line; N B its height at N; K I, if produced to H L, is the distance. The house E vanishes in C. The rest is explained in the former figure, or too obvious to need explanation.

\* \* \* There are two plates of these subjects, one outlined, the other shadowed.

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As the whole process of practical perspective is intimately connected with the foregoing suite of examples, it is proper to request the particular attention of the student to them; especially, as he is assured, that they contain nothing superfluous, or that may be dispensed with, but are arranged with design, that he may easily carry in his memory the rules they exemplify. It is necessary to be explicit on this subject, because it is very uncommon to treat this science so concisely in regard to the number of plates; but there is much reason to imagine that multiplied examples, and numerous plates, have frequently prevented that attention from being bestowed on it (because seemingly attended with difficulty) which the science deserves: whereas, in fact, its principal rules are by no means either difficult or complex; and the trouble connected with any part of it arises rather from the nature of certain objects to which it is applied, and from the inventions of ornamental decorations, whose composition is intricate. Now as the members of any part of a building are but divisions or portions of a certain extent, it is clear, that, if we are able to represent that extent, and to divide it into such portions, we are also able to  
treat

treat whatever those portions may contain: and thus the use of perspective appears most evidently in those articles, whose just representation is naturally difficult, and without this assistance impossible.

It will be extremely easy for the student to multiply examples similar to those here offered him; and indeed it is advisable that he should vary and diversify them at his pleasure; whether by giving various directions to his original lines, or by drawing to the right hand, what is here given to the left, or by any other change which fancy may suggest.

It is also proper to remark, that the construction of horizontal pictures is precisely the same as that of vertical pictures, which is easily experimented by looking up to the ceiling; in which case, the center beam or ray from the eye equally regulates every other line: the same if a person from a high parapet looks down to the ground; the wall of the house which supports the parapet answers to the situation of a horizontal plane, and the ground is to him vertical. But as it is hardly to be supposed that our readers should undertake such subjects, the present hint is thought sufficient without examples.

Perspective has by some persons been applied, to represent as receding what really approaches, and to bring forward what retires; but at the same time that this is allowed to be curious, it is equally considered as useless, and merely is the effect of irregular surfaces forming one picture.

It is amazing to see the errors committed by artists (not otherwise without merit) in their representation of sundry objects, and even frequently of spaces and distances:

tances: whereas, if they would insert on their designs merely three or four of the principal directing lines, they could not possibly commit such mistakes. Even in historical compositions, it is advisable to establish a height correspondent to that of a figure, and to gradate the same toward the horizontal line, as a directory for figures, &c. removed from the front of the picture. The same scale would serve to proportionate other objects, such as houses, &c. since it would then be scarcely possible to represent dwellings so small as to be uninhabitable, or their doors so straight as to deny a passage; on the other hand, it would prevent their dimensions from suiting giants rather than men.

With regard to planes inclined to the picture, and to the horizon, it may be observed, that it is not always necessary to delineate them by the process here given; but if the situation of the extremes of that portion of the plane which is wanted, can be determined by means of any points already obtained, they may be represented very easily: as for instance, the roof of a house, if the part where it joins to the front wall, be supposed, or given, and the same at the ridge of the roof, it is evident, that these points united by a line give the direction of the roof; and as the ridge is usually parallel to the front wall, it equally directs the roof in every part. The same remark applies to landscape: it is not always necessary to draw the inclination of a hill, &c. *geometrically*: by a little practice, the eye will quickly discover the true bearings of surfaces to each other, and will accordingly treat them with sufficient accuracy, after being familiarized to correct principles.

### LECTURE III.

**I**F the principles, which in the preceding LECTURES have been honoured with your attention, LADIES and GENTLEMEN, have been so clearly stated as their importance deserves, I may justly flatter myself, the remainder of our subject will be easily discussed, and readily understood; for, if we have once acquired accurate ideas of objects as seen in perspective, and know how to represent them justly, and on genuine principles, we shall need very little exertion of genius, or of study, to comprehend aright the natural effects of their SHADOWS: which at this opportunity are the subjects to be investigated.

Shadows are deprivations, or absences, of light, caused by the interposition of bodies sufficiently dense to prevent the passage of luminous rays; and though it cannot, with exact propriety, be asserted, that shadows are the offspring of light; yet it must be granted, that, without light, there would be no shadow.

Darkness was anterior to light, and seems more intimately connected with this lower world; since so soon as the great dispenser and cause of light withdraws his beams, obscurity returns, and continues, till the activity of the solar rays again dispels the gloom; to the constant joy of universal nature. Yet though "light be pleasant, and it be a cheerful thing to behold the sun," too much of this invaluable blessing is not only useless, but injurious: so that, beside the wonderful provision made in our visual organs for excluding redundancy, we also experience no little refreshment from reviving shade.

If shadows be merely interruptions of luminous rays, we may, without reluctance, engage a few minutes attention on some of the properties of light. Its rapidity is so vehement, that its effects may be considered as instantaneous; but that principle whereby its course is determined, more nearly concerns the subject of our attention. For if, instead of constantly keeping a direct line, its course was oblique, or spiral, or volutory in any manner, we should be to seek for different principles whereby to ascertain its progress: but as by the Almighty *fiat*, which said "LIGHT be, and light was," it takes invariably the nearest course from point to point, we acquire, by a simple experiment, perfect knowledge of its direction.

Whoever will interpose an opaque body between the origin and source of light, natural or artificial, and any proper substance exposed to its rays, will easily perceive the illuminations of those rays are precluded from the object furthest off, by their striking against that which is nearest; and also, that a direct line drawn to the luminary from any part of the space where light is suspended, will pass through a correspondent part of that object which suspends the light. For instance, when I hold my hand between the candle and the wainscot, it prevents many rays of light from passing further, and, consequently, occasions a blank of light (*i. e.* a shadow) on the wainscot; which blank (or shadow) is directly strait from the candle. And so very minute, and correspondent to the form of whatever impedes their progress are the rays of light, that they assume exactly its figure and outline, and describe a form perfectly similar, on the nearest superficies which may receive it.

Considered as related to perspective, light divides into two kinds: to each attention is necessary. FIRST, the NATURAL solar, or lunar light, whose origin being comparatively immensely distant, and actually beyond all proportion with respect to objects illuminated by it, is usually (and with propriety) considered

as *infinite*. Its rays, therefore, are not divergent, but *parallel*, and alike; and this, not only during the radiance of noon, but equally parallel are the beams of "grateful evening mild."

Taking their ideas from circumstances of artificial light which are familiar, some have thought that the sun may enlighten us from *below*, as does a candle when placed on the ground, notwithstanding our distance from it be considerable: and certain artists, not sufficiently attentive, have enlightened their figures under the eye-brows, chin, &c. in evening pieces: that nature does not justify this, is demonstrable; for the horizon, which is the height of the eye (how high soever that eye be situated), being likewise the boundary of the solar rays; it is evidently *parallel* to the eye. And further, were the horizon sufficiently defined, and the refractive powers of the atmosphere suspended, all the figure below the eye would be rather in demi-tint, than enlightened.

It scarce needs remark, that the altitude of the sun in the heavens, according to the time of the day, and according likewise to the season of the year, produces variations of shadow: for in the morning, as in the evening, the shadows it occasions are *infinite*; whereas, on the meridian (at noon), it describes a certain

tain angle with objects supposed perpendicular. In like manner Spring and Summer differ: for the sun's place in the ecliptic is perpetually changing; advancing or receding. And what is in this respect true of the sun applies equally to the moon; who sometimes rises near the horizon, and speedily disappears; sometimes pursues a track, whose arch seems near the zenith.

Nor ought I here to omit observing, that the various situations of countries occasion differences which deserve notice; for the sun being the origin of light, and its elevation not the same in unequal latitudes, from thence ensues diversity of shadow, as well as of general effect.

GERARD DE LAIRESSE relates an incident, which confirms the importance of this observation: "Being employed by a gentleman, who had been a governor in India, to paint a scene in that country, I made (says he) a sketch of it in his presence, which satisfied him, and having painted the picture, was desired to see it hung up: after the gentleman had viewed it, he whispered to me,—'It is very well done, but I forgot to tell you one thing of great moment; you can alter it in half an hour's time.' To be short—I had taken the sun *too low*, and also made him fall into the piece *sideways*, which occasioned long ground shades: whereas, he  
should

should have been nearly vertical, as in that country he generally appears." The artist could not but acknowledge the fault; though it was by no means to be rectified so easily as his employer supposed, since every light and shadow throughout the composition was erroneous.

Your recollection, LADIES and GENTLEMEN, will furnish you with other particulars to which these hints may be adapted, for they are of very general application. I shall suggest as a query, whether there be any variation of shadow in the two hemispheres, or, whether there be any permanent or observable difference? I suppose there is not: but that the apparent place of the sun in the north, instead of the south, is all that is remarkable. Time has been, according to HERODOTUS, when those who, having passed the line, asserted that the sun was behind them as they proceeded south, were considered as lying travellers; but this fact is now acknowledged. (I could wish this idea had been present to some artists, who then would not have illuminated those fronts of buildings where the sun never shines, an error I have seen committed.) The same cause may produce other differences perhaps allied to our subject: but, not inclining for a voyage to the Antarctic, I rest content with that knowledge of lights procurable in old England, and proceed to offer a  
few

few hints on the effect of ARTIFICIAL LUMINARIES, which is the SECOND kind of light to be considered.

The immense distance of the sun, or the moon, renders the rays they emit parallel; but as artificial lights, a torch, or a candle, cannot be equally distant, the rays they emit are easily traced to one point, around which they spread. Thus, although it be impossible that, in a figure illuminated by the sun, change of place, by walking forward or backward, should effect any variation of lights, and shades, yet such alteration of distance produces very remarkable diversity in every figure seen by artificial light; for hereby the shadows are shortened or lengthened, and the lights become brighter or weaker. Moreover, the extent of shadow projected by an object thus enlightened bears no proportion to the size of the object itself, but may be made to exceed it by very much; as when I hold my hand near the wainscot, its shadow corresponds to its natural dimensions; but when I advance it toward the candle, it interrupts a greater body of rays emitted from the luminary; consequently, its shadow occupies a space proportionably greater on the wainscot; and this may be increased till half the room is deprived of light. You see, likewise, that by placing it *above* the candle, its shadow appears on the ceiling (an effect which

which we have affirmed impossible from our natural lumiparies); and also, that the light *always* preserves its direct line.

The infinite variety of situations, wherein torches, lamps, &c. may be placed, produce a correspondent variety of effects; and preclude any determinate remarks upon them: since what might be very just, as applied to one instance, may be utterly inapplicable to another. Indeed we need not desire further instruction on this subject than we possess: our rules are so general and simple, they apply to all cases with alacrity.

The principles requisite toward treating shadows in perspective, are, first, to find the *seat* of the luminary; secondly, the situation of the planes around it, on which its light falls; and, thirdly, the relation of the objects enlightened to those planes.

I venture to differ from general opinion, in placing first the principles of artificial light; because I conceive that the *seat* of a lamp, or candle, is an idea more easily understood than the seat of the sun; but especially, as I wish you to study nature in all cases, and as this may, with the utmost ease, be reduced to the test of experiment.

This table is a horizontal plane, on which the candlestick stands; you comprehend with-

out difficulty that perpendicularly *under* the flame, is the seat of the light on that plane: this is too clear to need enlargement. With equal evidence it appears, that the seat of the light on the ceiling is immediately perpendicularly *above* the flame; to prove which assertion, we have only to suspend a small line, and by placing the candle under it, its veracity is demonstrated. On similar principles is the seat of the light found on any other plane, being always a straight line drawn from the center of light, to the most direct and proximate part of the plane;—as on the side of this room, the seat of the light is in that part nearest the luminary, and thereby most exposed to its immediate and vigorous rays.

I persuade myself, LADIES and GENTLEMEN, this system is too evident to require much explanation; and not less simple and facile is its application; for, if we desire to trace the course of a shadow which falls on any plane, we have principally to consider the direction of the object which casts it; and by finding the situations of the shadows of its extremes, we have almost accomplished our intention sufficiently for general purposes.

If an object be perpendicular to a plane, whereon it stands, the course of its shadow will be,

from that part of it adjoining the plane, *opposite* to the seat of light on that plane, and its length will be determined, by a line from the luminary through its other extreme, intersecting the course of the shadow. If an object be oblique to a plane, lines drawn from the luminary through each extreme give the seat of its shadow; if it be parallel to a plane, the shadow follows the course of its parallel, and vanishes in its vanishing point. It is true, that as well objects as planes may be so tortured into awkward and intricate shapes and forms, as to occasion no little trouble to find their shadows; yet if we can ascertain their representations on any one plane, they become easily manageable on others.

Artificial lights seem most directly under our control, and most susceptible of demonstration; I have, therefore, introduced them before the observations I intend to offer on the principles of shadows occasioned by the sun or moon; but the rules to be adopted, in treating these, are not unlike the former.

It is, indeed, impossible to *fix* a natural and real seat for the sun on any part we include in our small survey of this our globe, because, very distant from us, is that spot where he is vertical; yet by *assuming* a point for the luminary, and another

ther for its seat, we possess principles which apply to this occasion also.

The center of the picture, the horizontal and vertical lines, have already engaged our attention, and we shall receive from them much assistance on the present occasion. We imagine a vertical plane bearing directly south, erect before us; a wall for instance, down which we look: suppose the sun on one side of it,—to the *left* first, if you please. It is evident that, according to his *obliquity* from this plane, his rays will be more or less declined, with respect to ourselves, and to our situation. If we keep our station, while the sun by degrees approaches the direction of our plane, the declination of his rays gradually lessens, till at length they become union with it, and we receive them full in the face. When the sun increases his direction to the right of the plane supposed, the declination of his rays proportionably augments, till at length they *cross* the center beam of the eye; and fall direct on the supposed wall.

During his whole progress hitherto, we are able to ascertain on the picture a point correspondent to his situation, which may be denominated his *seat* on the picture; and which is, where a line drawn from the eye, to that elevation at which he appears, cuts the picture. This

seat on the picture must, of necessity, be *above* the horizontal line, as we may, in effect, be said to see the luminary directly or obliquely; but so soon as he passes behind us, his seat on the picture falls *below* the horizontal line, and the greater his elevation, the lower is his seat; till, as he sets behind the horizon, it becomes union with the horizontal line. In this course (if we incline to the supposition of a lengthened day) he may twice be union with the vertical plane; *i. e.* right before us; also right behind us. And was he, during the whole *nocthemeron* (or day of twenty-four hours) above the horizon, he might also be twice in the plane of the picture, and likewise in every angular horizontal obliquity. *A-propos* (excuse the digression), methinks it must somewhat embarrass natives of our medium latitudes to distinguish day from night, when they visit the polar regions during their summer, for then the sun is constantly above the horizon, and our supposition might be found true in fact. I confess I have no conception of a night-piece by *sun-light*: rather might we not enquire, can it be *night* while the sun shines? If it may, it palliates the ignorance of the painter, who, unable to represent a *moon-light*, illuminated, by sunshine, even midnight subjects.

The

The sun's altitude in the heavens we have already noticed ; it is too evidently consequential, to need argumentative reasoning by way of exciting attention.

The method of practice is easily deducible from these principles. It is necessary to have in a picture four chief points: *First*, the center, which is the soul of the system; *secondly*, the place of the sun according to his elevation, and to his obliquity; *thirdly*, a point on the horizontal line, perpendicularly *under* the place of the sun (which is a kind of transposition of that place on to the horizontal line, serving for shadows on the horizontal plane); *fourthly*, a point on the vertical line, perpendicularly *lateral* to the place of the sun (and which also is a kind of transposition of the sun's place on to the vertical line, serving for shadows on the vertical plane).

In discoursing on artificial light, we observed that it was in our power to ascertain the *real* seat of the light, and to place objects beyond that seat from us; consequently, to enlighten them differently, merely by moving them straight forwards: but this we cannot do in the present instance; on the contrary, all we can accomplish is, to approximate as near to that seat as our horizon will permit, and thereby

to tend *towards* the sun's real seat. If we should inquire after that, it is, perhaps, in the morning in the Indian Ocean; at noon in Africa; in the evening in South America; therefore, evidently beyond our application: yet such is the virtue of the lines we describe, that certainly, if prolonged, they would tend from the spectator to where the sun is vertical. And thus it appears, that although, by his magnitude and immense distance, he obliges us to vary the application of our principles; yet the principles themselves continue of permanent and manifest utility.

By this time, I flatter myself, LADIES and GENTLEMEN, you have acquired a distinct idea of the nature and effects of shadows as related to perspective: it is not the business of the LECTURE to apply them to specific objects; for that I refer to the examples; and shall now offer a few thoughts on reflected appearances.

Had I inclined to introduce here an eulogium on the science of perspective, I certainly might have congratulated myself on a happy opportunity, since the principles we have been discussing are closely allied to the sublime; but I rather wish to impress on the minds of my auditory, an abiding conviction of their UTILITY. It is true, they are

too

too much neglected and disregarded; but I will be bold to say, no person of any degree of taste or liberality, after once possessing them, would be induced to forget them. What shall we say, then, to the inattentive indolence of many artists, who omit to cultivate an acquaintance with them; or, if acquainted with them, violate their precepts without scruple?

In the article of REFLECTIONS (whose principles are extremely simple) this violation occurs very frequently; and although nothing is easier than to say that the inferior appearance or counter-part of an object must not exceed the object itself, yet this is often neglected or forgotten.

When you have reflections of any kind to represent, consider, LADIES and GENTLEMEN, that the angle of incidence and the angle of reflection are equal. As you stand before a house, for instance, you see the sun in its windows; what then is the place of the sun? It is just so many degrees of a circle distant from the direct aspect of the window (whether ten, twenty, or thirty degrees), as your own situation. Or bring the principle to the test of the mirror: although to see yourselves you stand right before it and close to it, yet, when standing at a little distance from it, if you wish to see

see a particular object obliquely situated on the further side of a room, you must inevitably retire from the direct front of the glass, to a station which corresponds with the angle made by that object with the glass: this effect is equal, whether the spectator change his station, or the direction of the glass be varied.

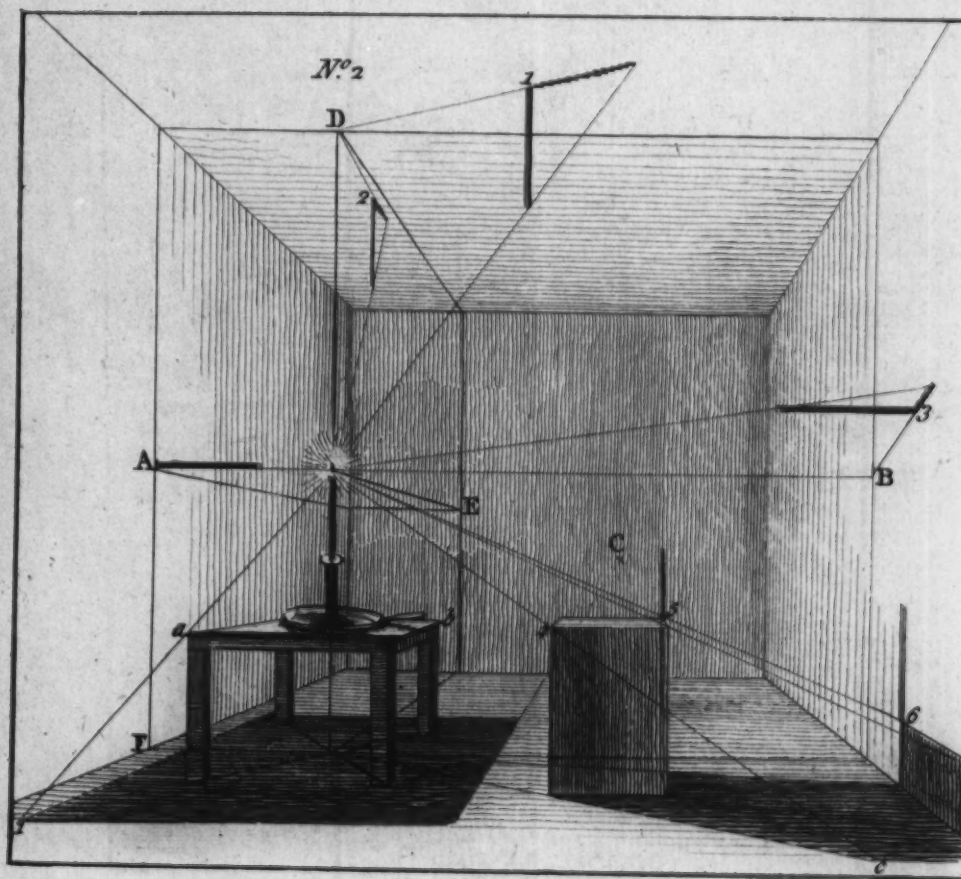
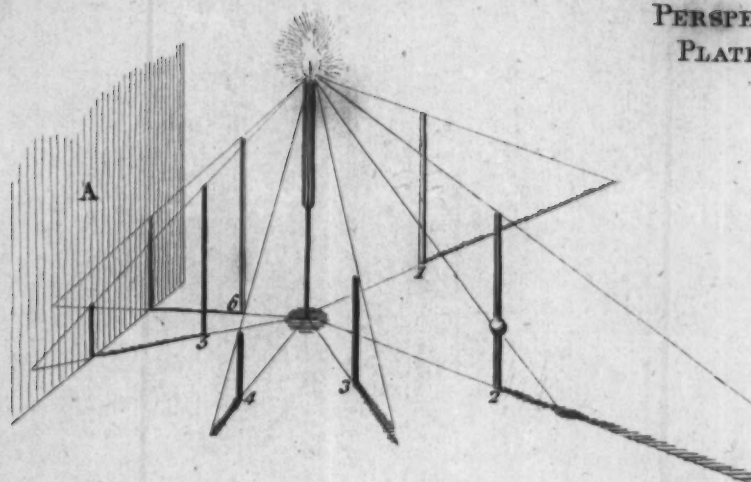
With regard to houses, &c. seen in water, nearly level, we merely assume a line on which they are supposed to stand; then we let fall perpendiculars from the principal parts of the buildings, which preserve their original forms, tend to their original points, keep their original angles made with each other, and differ merely by being *inverted*. If our station be exalted, we see reflected the inferior faces of their projecting parts.

Reflection is varied by the nature of the reflective medium; whether tranquil and clear, or agitated and discoloured; by the variations of force in objects, and by the situation of the enlightening luminary. Reflected objects should always be rather *kept down*, or abated in their strength, than be permitted to dispute with their originals.

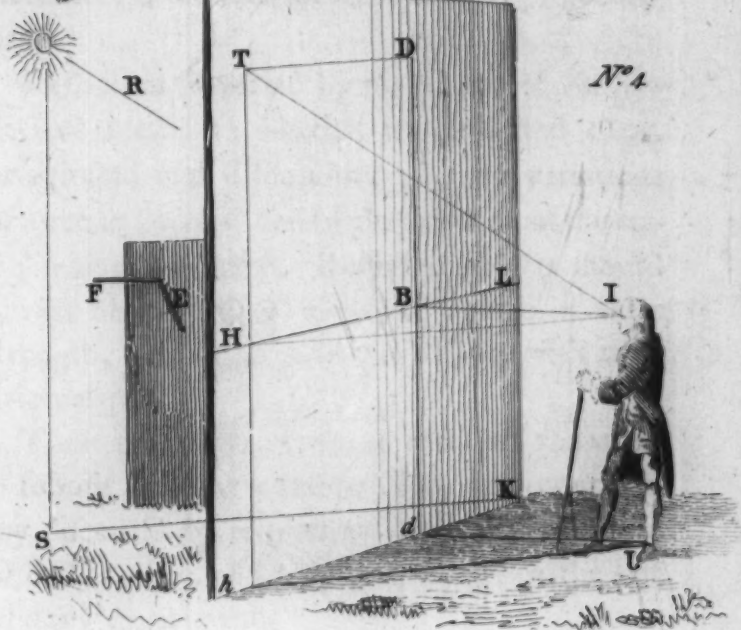
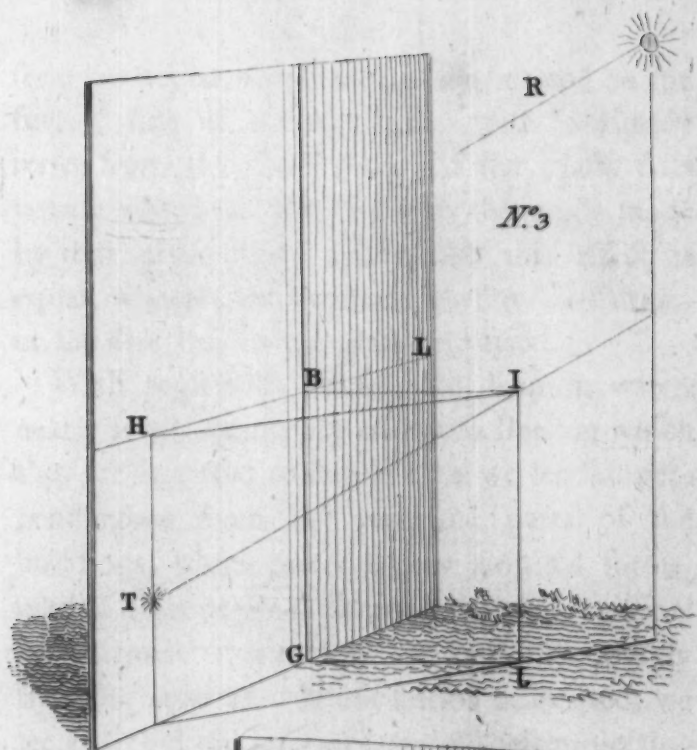
These principles, LADIES and GENTLEMEN, I submit to your consideration, and conclude my discourse by reminding you, that they are of daily utility, and may be brought to the test of daily experiment.



N<sup>o</sup> 2



PERSPECTIVE.  
 PLATE XI.





# OBSERVATIONS

*On the Plates belonging to LECTURE III.*

## P L A T E   X I.

No. I. **I**S intended to explain the nature of the seat of the luminary, and the effects of diverging rays. The inspection of the figure shews, that its principles are very simple; for having drawn, from the seat of the light, lines through the bottoms of the sticks 1 2 3 4 5 6; and, from the luminous point, lines through their tops, the intersections give the lengths of the shadows; which appear short to some, and long to others, according to their heights, or distances.

The shadows of No. 5 and 6, being interrupted by the surface A, instead of continuing their course, receive a direction corresponding to that surface.

No. II. Exhibits the seat of light on various planes: the candle is supposed to stand on the middle of the table, in which case, its seat on the floor is found by the intersection of diagonals from the legs of the table. A horizontal line, drawn through this center to the opposite sides of the room, gives the points (as F) at which perpendiculars being raised will pass through the seats of light: a horizontal line from the point of light determines the exact seat, as at A and B. On the same principle, a line uniting the extremes of A and B on the ceiling, intersected by a line from the light, as at D, gives the seat of light on the ceiling. To find the seat of

light on the further side of the room, rule from the seat of light on the floor, to C (the center of the picture); where this line touches the bottom of the wall, erect a perpendicular, on which the required point is determined, by a line from the luminary to C, as at E: the same may be obtained by a similar process from D on the ceiling.

The shadows of all objects perpendicular to a plane tend toward the seat of light on that plane: thus the shadows of 1 and 2 on the ceiling, are found by the intersection of lines drawn from the seat of light, D, through their bottoms, and others from the luminary itself, through their tops.

The same is precisely the effect of 3, whose shadow tends to B.

The object 4 follows the same rules; and the shadows of its sides, as *a*, tend to the seat of light on the floor. The shadow of 5 falls at 6, and, not being perpendicular but *parallel* to the plane B, the shadow of this side of the object 4 vanishes in C; as do the shadows, on the ground, of the sides *a* and *b* of the table.

One instance of the utility of shadows appears in 5; which may, or may not, be united to 4, by its situation in the figure; but which is determined by the shadow at 6 to be affixed to it.

As this process is so very easy, these examples may suffice.

To represent shadows caused by the SUN, we must fix a point in the picture for the luminary, and likewise, as its seat, a point on the plane on which the shadow is to be cast: this is found, by letting fall a perpendicular

pendicular from the luminary ; whose situation with respect to the picture we shall quickly attend to.

In No. III. R is a ray from the sun ; I the Spectator's eye ; of which J is the seat. The rays of the sun being parallel, a line parallel to R passing through I gives T for the place of the sun in the picture ; a line from the seat of the sun, through the seat of the eye (J) cuts the picture perpendicularly under T : produce the perpendicular, till it cuts the horizontal line, as at H, for the vanishing point of shadows on the ground.

B is the center of the picture : if the sun was *perpendicular* to the plane of the picture, and of consequence right at the back of the spectator I J, the line H T would become union with the vertical line B G ; as was the sun on *this side* the spectator, the line H T would be removed toward L. If the sun was *nearer the horizon*, the point T would be proportionally elevated toward H ; or, if the sun was *in the zenith*, it would be immediately over B G, and occasion no lateral shadow.

When the spectator is *between* the sun and the picture, as in this example, the seat of the sun on the picture, as at T, is *below* the horizontal line ; but when the picture is between the spectator and the sun, the sun's seat on the picture is of necessity above that line, as has been explained in the LECTURE.

No. IV. In this example the picture is between the sun and the spectator ; and the plane on which it is proposed to find the shadow is vertical (as E).

I is the spectator's eye ; J its seat ; R the inclination of the luminous rays ; S the seat of the luminary on the ground ; and S K the declination of the rays. F is a line perpendicular to E.

To prepare this picture, first draw  $Jb$  parallel to  $SK$ , and at  $b$  erect a perpendicular; then draw  $IT$  parallel to  $R$ , cutting the line from  $b$  in  $T$ , which is the sun's place in the picture.  $B$  is the center of the picture, through which produce a perpendicular, as  $Dd$ , which is the vanishing line of the perpendicular plane  $E$ . Draw  $TD$  perpendicular to  $Tb$ , then is  $D$  the seat of the sun on the vertical line, and the vanishing point of shadows on that plane; as  $H$  is, on the horizontal line.

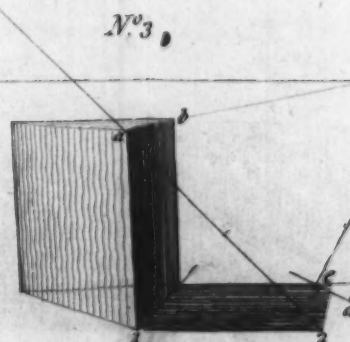
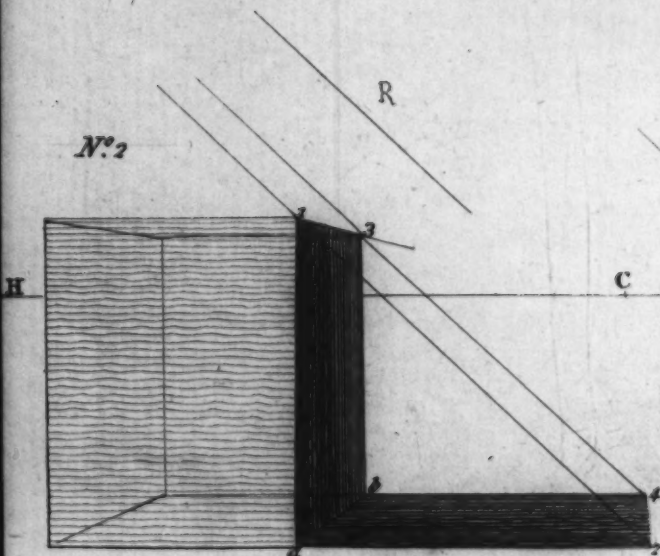
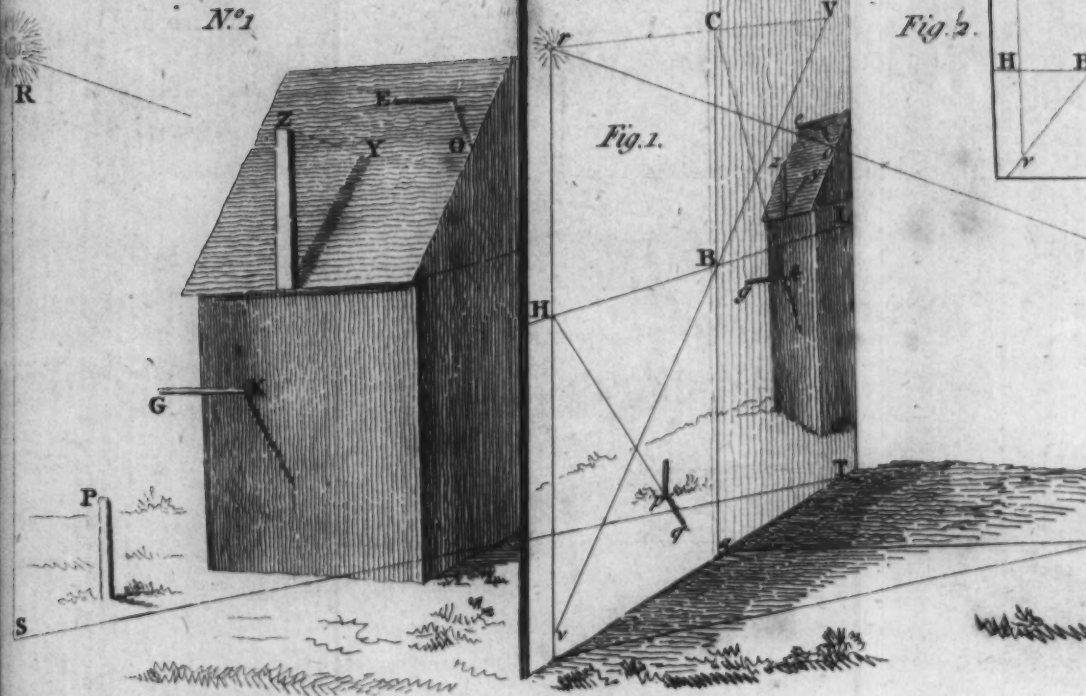
## P L A T E. XII.

No. I. Figure 1. To the foregoing example this adds the method of finding the shadow on a plane *inclined* to the horizon, but perpendicular to the picture.

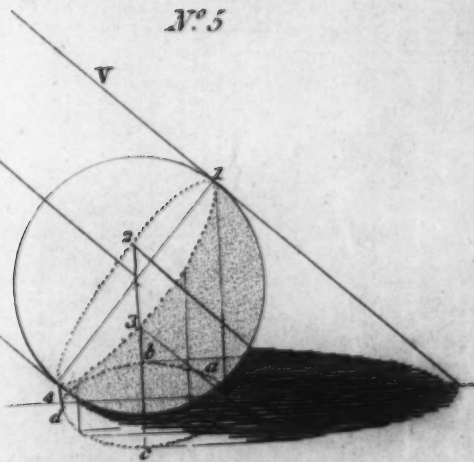
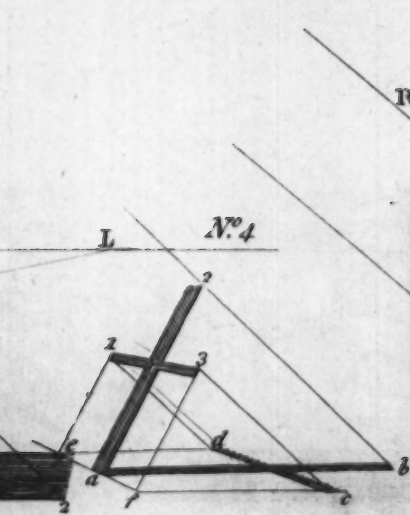
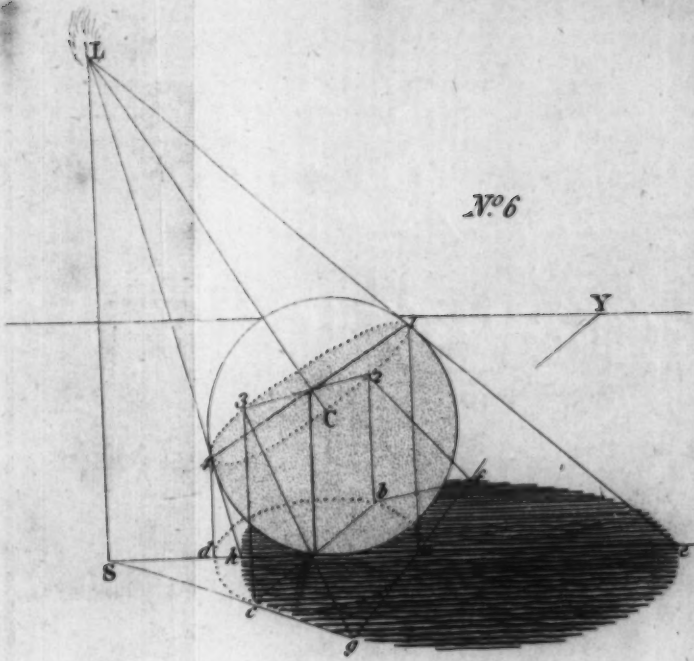
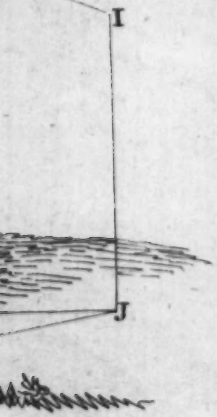
The first part of the process here is exactly as the foregoing:  $I$  the spectator's eye;  $J$  its seat:  $R$  the luminary;  $S$  its seat:  $ST$  the declination of the rays: procure the point  $H$  as before, by drawing from  $J$  to the picture a line striking it beneath  $v$ , from whence erect a perpendicular, and from  $I$  draw (parallel to the original ray)  $Ir$ : erect at  $B$  a vertical line, which, cut by one perpendicular to it from  $r$ , gives  $C$  for the seat of the sun on the vertical plane.

Now to procure the vanishing points for the shadows on the inclined plane  $Y$ ; through  $B$  draw  $BV$  (corresponding to the direction of the plane  $Y$ ) cut by  $rC$  at  $V$ ; which is the vanishing point for the shadows of horizontal objects on  $Y$ . The line  $VB$  continued till it intersects  $rH$ , (as at  $v$ ) gives  $v$  as the vanishing point for shadows of vertical objects on  $Y$ .





PERSPECTIVE. PLATE XII.





Of the shadows in this example,  $p q$  tends to  $H$ ; being on the horizontal plane:  $k$ , shadow of  $g$ , tends to  $C$ ; being on the vertical plane:  $o$ , shadow of  $e$ , tends to  $V$ ; being horizontal on the inclined plane: and  $z$  being vertical, its shadow  $y$  on that plane tends to  $v$ .

Figure 2. Shews the systematic lines, freed from objects and shadows, and in their proper bearings as seen direct. The references are the same.

Supposing the foregoing figures sufficient to explain the general principles of shadows, as projected either by a lamp, or by the sun, we proceed to notice the application to these principles to illuminated objects.

In No. II. the sun is supposed to be in the plane of the picture; consequently neither before nor behind it. In this case, we previously determine its elevation in the heavens, and assume the direction of its rays accordingly, as  $R$ . The sun being in the plane of the picture, the shadows it occasions are of necessity parallel to the ground line, so that we need only procure their lengths, by intersections parallel to the rays: thus the shadow of  $a 1$  is found by the line  $1 2$ ; and  $b g$ , by the line  $3 4$ : this shadow, being parallel to the horizontal plane, vanishes in  $C$ , the center.

No. III. Is treated on the same principles, but being a prism, its side  $a b$  vanishes in  $L$ , as does its shadow.

No. IV. Is an application of the same principles to an inclined cross, vanishing in  $C$ : first, parallel to the standard beam  $a 2$ , rule  $1 e$  and  $3 f$ ; their seat is determined by a line from  $C$ : then rule horizontal lines for their extent, which, intersected by lines parallel to the ray, give their shadows, as  $1 d, 2 b, 3 c$ .

No. V.

No. V. Shews how to find the shadow of a globe enlightened by the sun: here we may observe, that the shadow of a globe is similar to that of a circle *directly* opposed to the luminary; by finding therefore the shadows of certain points in its circumference so opposed, we obtain the whole. R is a ray of light; V the center of the picture; 1 2 3 4 is a supposed section, describing the enlightened part: procure the seat of this circle on the ground, by perpendiculars, as 1 *a*, 2 *b*, 3 *c*, 4 *d*; rule lines parallel to R, from 1 2 3 4 for the shadow; and lines parallel to the ground plane from *a b c d*: their intersections ascertain the seats of the shadows of those points (1 2 3 4) in the original section; which, being joined, conduct the rest of the shadow of the circumference.

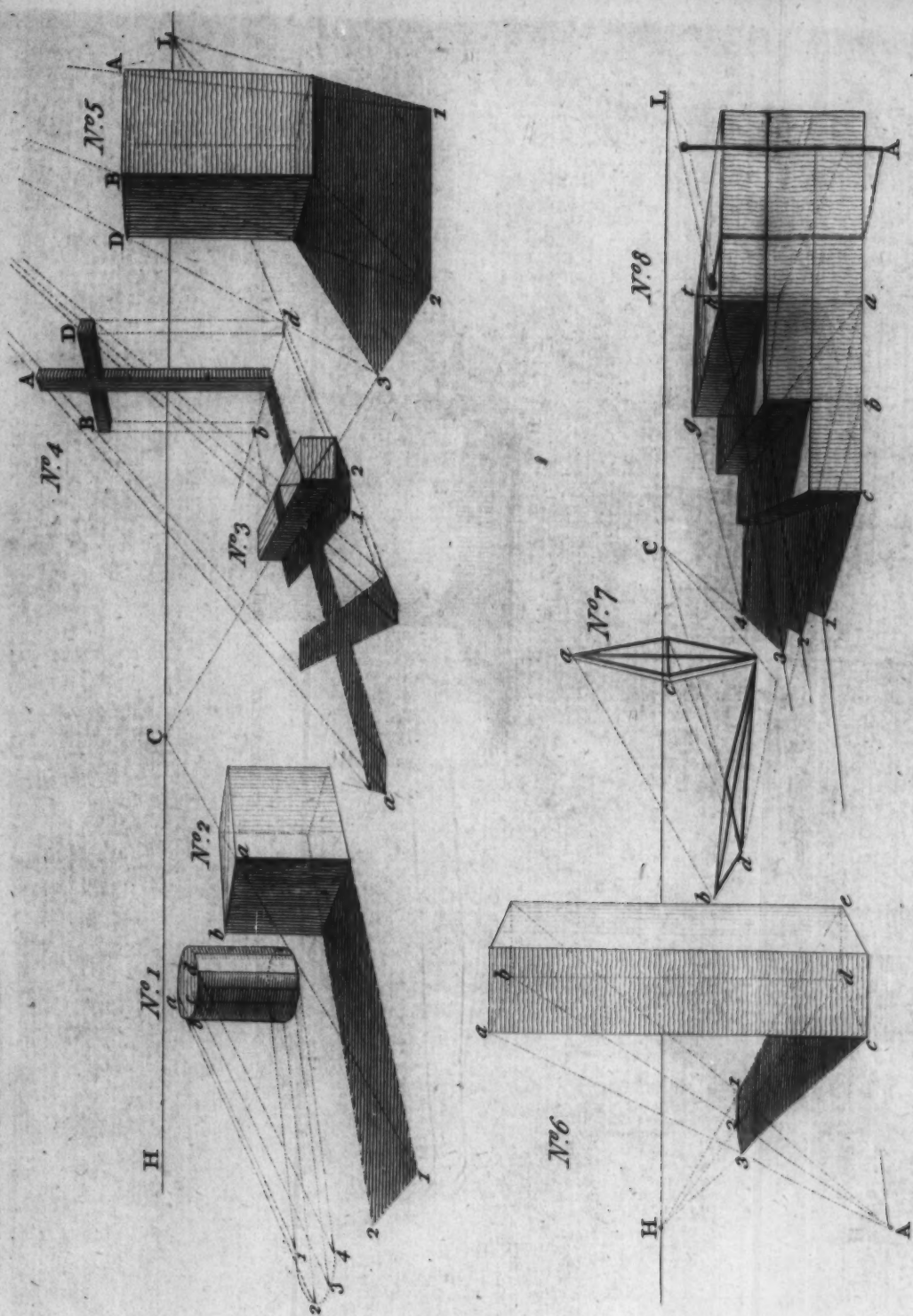
No. VI. Is a globe enlightened by a lamp: now as the luminary is so near the object, a much less portion than half the circumference is alone capable of receiving light. We have to suppose a similar section as before; i. e. 1 2 3 4; find their seats on the ground, by perpendiculars to *a b c d*; rule L 1, L 2, L 3, L 4; and from the seat of the light S, rule intersections as L 1 in *e*; L 2 in *f*; L 3 in *g*; L 4 in *h*. These points, united, indicate the shadow of the original section. Y is the center of the picture.

### P L A T E XIII.

In the first line of examples, H L is the horizontal line; C the center: *out of the picture* immediately above L (as



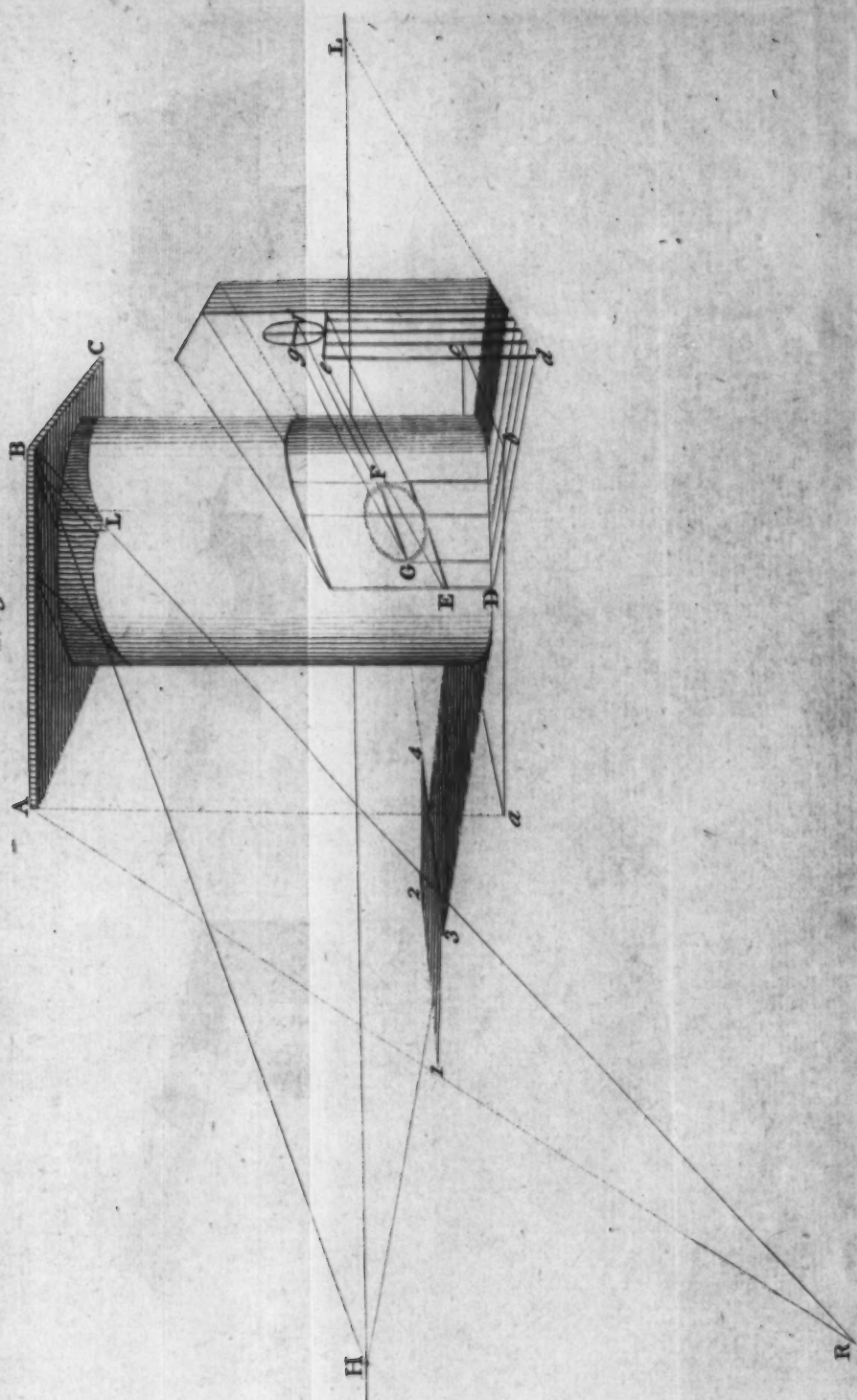
PERSPECTIVE PLATE XIII.



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L (as may be found by tracing the radial lines) is the place of the sun, consequently L is its transposed seat on the horizontal plane.

No. I. To find the shadow of a cylinder, select three or four points in its upper surface, as *a b c d*; find their seats at the lower surface, by letting fall perpendiculars; rule parallels to the radial, from the upper surface; and from L, rule through the corresponding points below, till they intersect the former, as 1 2 3 4.

No. II. Is a cube, whose shadow is found by ruling, from the place of the sun, lines through its corners, as *a b*; which are intersected by lines from L, as 1 2: this shadow, being parallel to the side *a b*, tends to the vanishing point of that side.

No. III. Shews the passage of a shadow over a block lying along; the block vanishes in C; the line describing its *further* side at bottom, being drawn, the shadow of the cross is traced to it, then it mounts directly up the perpendicular side, and appears again on the surface, where it recovers its former course: the shadow of the end of the block, at 1 2, is found the same as No. II.

No. IV. Explains the shadow of a cross: the seat of the cross-beam (*b d*) is found as in No. IV. Plate XII. Radials are ruled from the principal parts, as A B D; and intersected by lines from L, through the seats of those parts, as *a*, &c.

No. V. Is a cube with one face parallel to the picture: 1 is the shadow of A, 2 of B, 3 of D; as B D vanishes in C, so does its shadow 2 3, being parallel to it.

In these examples the sun is *behind* the picture.

In

In the following examples the sun is *before* the picture.

H is the seat of the sun on the horizontal line.

A is the vanishing point of the rays of light; or, the supposed seat of the sun on the horizontal plane.

No. VI. Is a cube erect; the lines from its upper corners tend to A, as *a b*; those from its bottom corners, to H, as *c d e*: their intersections determine the shadow, as 1 2 3.

No. VII. Is treated on the principles of No. IV. by finding the seat of its extremes, and ruling them to A, as of *a* and *c*; intersected from H as *b* and *d*.

No. VIII. Is an application of the same method to a flight of steps; whose bottom corner, *c*, is ruled to H, and the top of the same step to A, intersecting at 1. The seat of the second step is found at *b*, which, ruled to H, is cut at 2; the seat of the third step is at *a*, which is cut at 3; 4 is the intersection of the seat of the *further* end of the same face, which is found by letting fall a perpendicular from *g*, intersected by *a* C. In the same manner, is found, the seat of *t*; which likewise ruled to H completes the shadow on the ground. The shadows of the higher steps on the lower are explicit.

The shadow of the stick A is ruled to H, till it meets the step, whose perpendicular course it follows; on the horizontal part of the step, it is again ruled to H; the shadow of its head, ruled to A, completes the whole.

No. IX. In this example the sun is *before* the picture; R its supposed seat; H its transposed seat on the horizontal line.

The shadow of the cylinder is ruled to H.

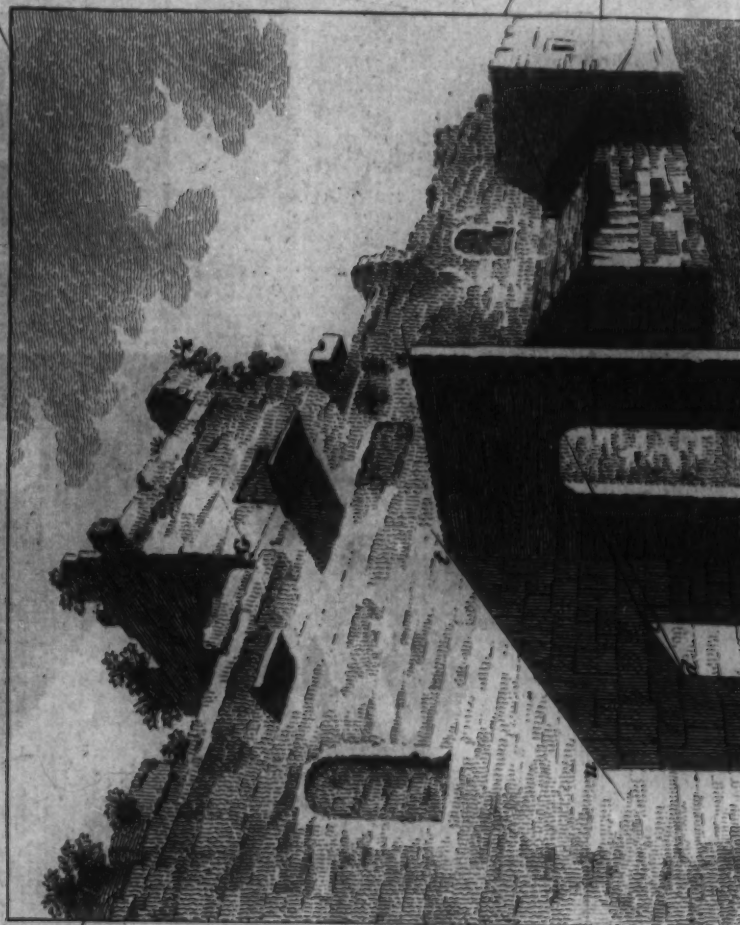
The shadow of the board on the top of the cylinder,

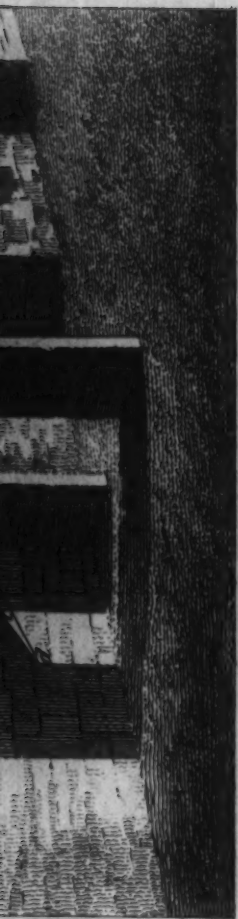


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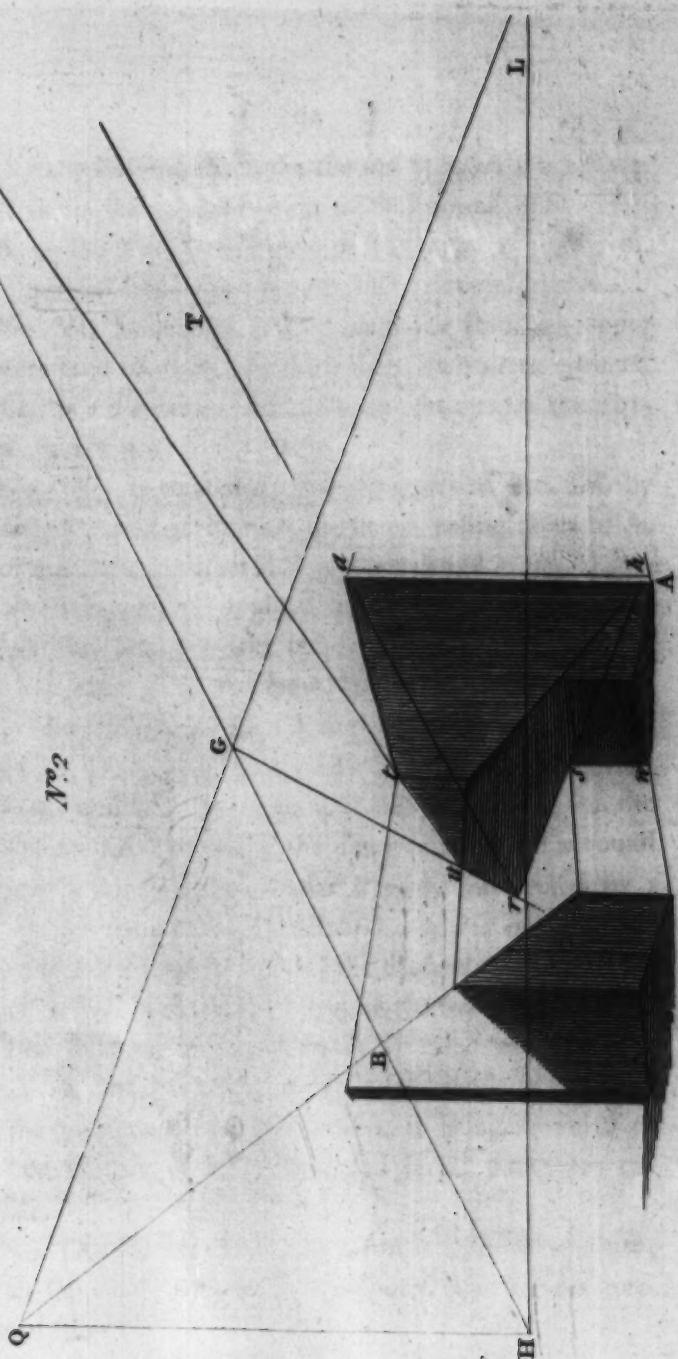
PERSPECTIVE PLATE XIV.

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cylinder, and which falls on the cylinder, is formed, by selecting as many points as are thought necessary between A B and B C. As at B, rule B H; where it touches the top of the cylinder, let fall a perpendicular; where that is intersected by B R is the shadow of B, as at L. The same for any other point, between A and B.

The shadow of the board on the ground is found by procuring its seat, as of A B C, at *a b c*; which are ruled to H. The shadow of the wire *e* on the cylinder is found by ruling its seat *d* to H, striking the bottom of the cylinder in D; then erecting a perpendicular, which is cut by *e* R for the place of the shadow of *e*: the same method procures G and F.

This figure exemplifies the method of treating columns, &c. in architecture, the shadows of square mouldings, &c. when they fall on columns, &c.

## P L A T E XIV.

No. I. In this example we have a wall (G), and, at right angles with it, another wall, with a door-way in it. H L is the horizontal line; the sun is supposed in the plane of the picture; the inclination of its rays, to be R H.

First, from the bottom of the projecting wall, rule a horizontal line to the bottom of the wall G; where erect a perpendicular, which, cut by a line from *a* parallel to R H, gives *u* for the shadow of *a*, which unite to *t*. Or, rule from R, *t u*, which gives the shadow of the top *t a*: *c* and *d* are exactly similar.

The shed D is shewn more distinctly in No. II: the systematic lines are the same.

The wall B (to which the side of the shed  $ws$  is parallel) vanishes in L.

The wall A vanishes in H, the roof of the shed in G; T represents the inclination of the rays of light.

First, draw  $Aw$ , where erect  $ws$ : then draw R through  $t$ , striking the top of the shed in  $u$ ; there remains now only that part of the shadow which fall on the roof. Rule G through  $u$ ; intersect it by a line from  $a$ , parallel to the rays of light, as at  $r$ , which unite to  $s$ . Or this part of the shadow may be found, by ruling  $Qh$ , cutting  $Ab$  in  $b$ ; then rule  $bsr$ .

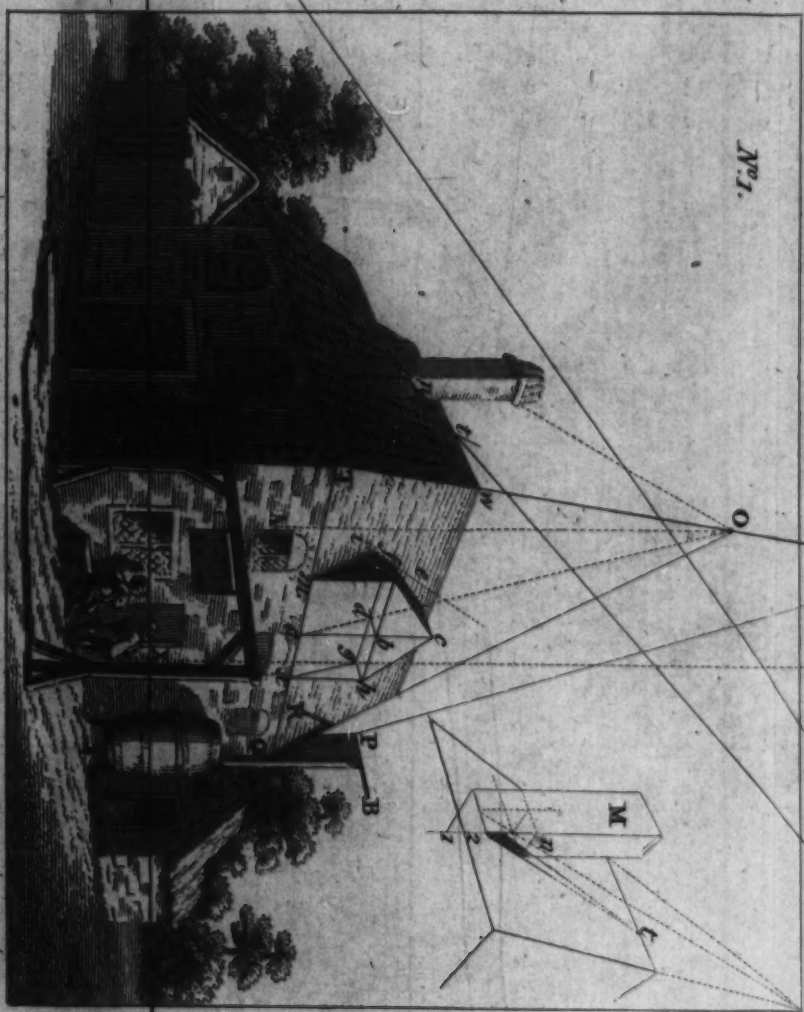
## P L A T E XV.

No. I. Represents a house standing oblique to the picture.  $HL$  the horizontal line. The sun is in the plane of the picture; and his rays parallel to  $VH$ .

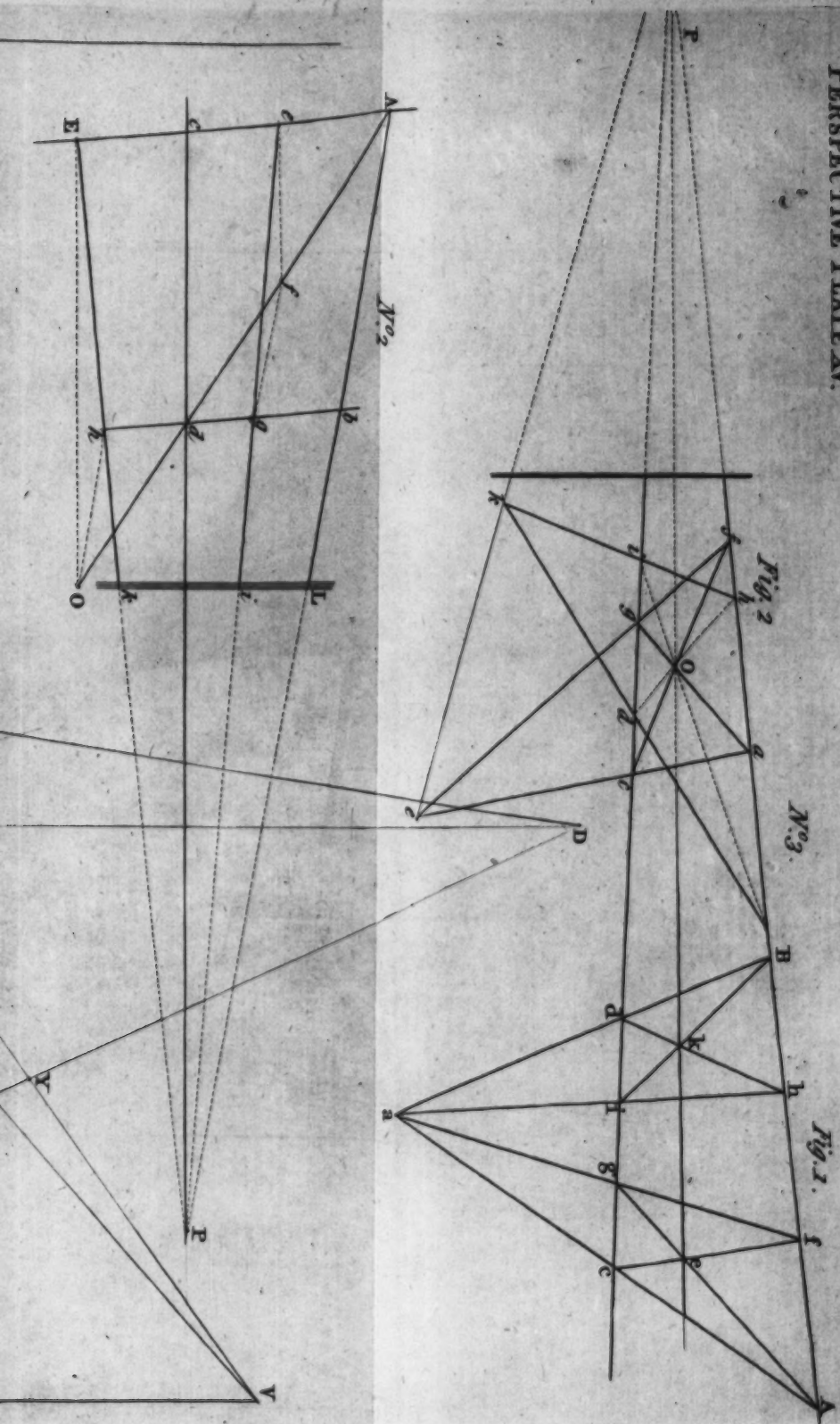
One side of the house (G) vanishes in H, the other in L: these are too obvious to need explanation; the roof is supposed pyramidal, and a pyramid set on a cube is the same as if standing on a plane. *Vide* No. VI. Plate VI. Rule therefore diagonals to find its center, which is at A, where erect its axis  $AO$ , and to O draw its sides.

To represent the garret window; erect  $ac$ , and suppose  $b$  the height of the hole made in the roof; draw  $aO$ , then  $bHcH$  intersecting it: Supposing  $m$  and  $x$  the extent of the window, erect there perpendiculars; these,





PERSPECTIVE PLATE XV.





these, cut by a line from  $b$  to  $L$ , give the square, and, united at  $c$ , the roof of the window.

To find the shadows cast on the roof of the house; lay a ruler from  $T$  through  $A$  striking the horizontal line in  $X$ ; where erect  $X D$  perpendicular to  $H L$ , and continue  $T O$ , till it meets that line in  $D$ : rule  $D L$ , which is the vanishing line of the plane  $T O R$ , intersecting the plane of rays in  $Y$ , which is a vanishing point for the shadows on the roof.

The shadow of the window is found, by ruling  $f Y$ , which intersected by a parallel to  $Y H$ , from the nearest corner of the top of the window-square, gives  $i$  for its termination. On the same principle the shadow of  $B$  is found: rule  $Y P R'$ , intersected by a line parallel to  $V H$  from  $B$ , gives  $R$  for the shadow of  $B$ .

The shadow of the roof on the chimney is found, by continuing to the top of the roof the line where the chimney and the roof meet, as at  $t$ ; through  $t$  draw  $V t n$ ; a line through  $w$ , parallel to  $V H$ , will strike the chimney in  $n$ . The figure  $M$  shews the chimney more distinctly; and that its construction resembles that of the window.

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As it sometimes happens that vanishing points, &c. are not only out of the picture, but at an inconvenient distance; it is desirable to be able to draw lines to a point so removed, without the insertion of the point itself: one way of accomplishing this is given in No. II.

The boundaries of the picture end at  $L i k$ :  $A b$  and  $c d$  are lines which already tend to  $P$ ; and from  $e$  is required to draw a line tending to the same point. Draw  $A c$  through  $e$ , and  $b d$  parallel to  $A c$ ; draw a diagonal

diagonal as  $A d$ ; draw  $e f$  parallel to  $c d$ , and  $f g$  parallel to  $A b$ , intersecting  $b d$  in  $g$ : a line drawn from  $e$  through  $g$  will tend to the same point as  $A b$  and  $c d$ . The same method is used to procure the line  $E k$ : draw a line from  $A$  through  $E$ , and another parallel to it, as  $b h$ ; the diagonal is drawn from  $A$  to  $O$ ,  $E O$  is parallel to  $c d$ , and  $b O$  to  $A b$ , which gives  $E b$  for the direction of that line to  $P$ .

Another way appears at No. III. Fig. 1.  $A B$  and  $c d$  are lines tending to a point at  $P$ ; it is required to draw from  $e$ , a line to  $P$ . When the point is *between* two lines, through the point  $e$  draw two lines at pleasure, cutting  $A B$  and  $C d$  in  $A f c g$ ; continue  $A c$  and  $f g$ , till they meet at  $a$ ; draw at pleasure  $a h$  and  $a B$ , cutting the given lines in  $d i$ , and  $B h$ ; join  $B i$  and  $d h$  as at  $k$ ; a line drawn from  $e$  through  $k$  will terminate in  $P$ .

Figure 2. Is a method applicable when the point is outside the given lines, as at  $e$ . Draw at pleasure  $e a, e f$ , cutting the two original lines in  $c a g f$ ; join  $a g$  and  $f c$ , intersecting in  $O$ . Draw any other line, as  $B k$ ; at  $d$ , where it cuts  $c i$ , draw  $d b$  through  $O$ ; also draw  $B i$  through  $O$ ; lastly, through  $b$  and  $i$  draw a line till it intersects  $B k$ , as at  $k$ ; a line from  $e$  through  $k$  will tend to  $P$ .

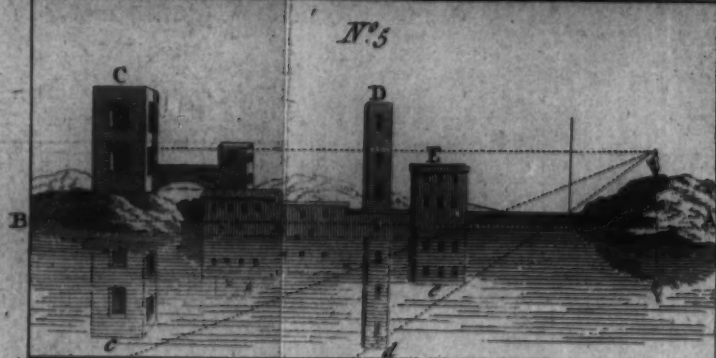
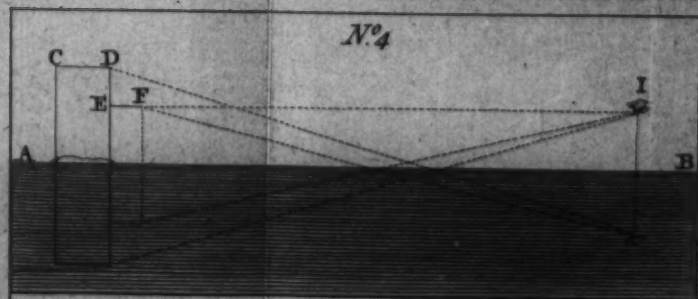
## P L A T E XVI.

No. I. Shews the reflection of houses, &c. in water, whose principles are extremely simple. Procure the seat of the objects, and invert their perpendiculars as much below that seat, as they appear above it: ruling their perspective lines to the same points as the originals.





# PERSPECTIVE PLATE XVI.





Thus *a* is the reflection and counterpart of *A*; but there being no reflective medium between *B* and the spectator, *B* cannot appear inverted. *d* is the reflection of *D*; 2 of 1, 4 of 3, and *e* of *E*: these all vanish in *C*. *F* vanishes in *I*, and so does its reflection *f*, of course.

No. II. Explains, as well the manner of finding the shadows of these objects, as their reflections. *C* is the center; *H* the vanishing point of the rays of light, *i. e.* the seat of the sun on the horizontal line.

This figure is a hollow cylinder cut open, its hither end parallel to the picture. To represent its shadow on the ground; find the seat of 3, as at 5, rule this to *H*, then rule 3 to *M*, their intersection gives the shadow. The shadows of the other corners are found by the same method. For the shadow of the edge on the internal hollow, rule *ar*, *bs*, *ct*, parallel to *CM*; then rule *rst* to *C*, and *abc* to *L*; their intersections describe the course of the shadow. The object being parallel to the picture, is perfectly circular, as also is its reflection *W*.

The reflection of *K* is found by merely inverting its height, as at *k*.

The shadow of *K* on the cylinder, is found thus: From any point in the outer circumference of the tube, as 2, draw 2 *C*; then find the seat of 2 on the ground, as at *g*, rule this to *C*; and where it is crossed by the shadow of *K* ruled to *H*, as at *f*, erect a perpendicular, intersecting 2 *C* at *q*, for one side of the shadow: as *u* gives *y* for the other side of the shadow. To continue the course of the shadow, take another point on the circumference as *r*, find its seat, rule it to *C*, erect a line, &c. as before; it gives *S* by its intersection with *r C*.

The shadow on the inside the cylinder, is found as before; parallel to CM rule  $at$ , and  $bl$ ; rule  $tC$ ,  $lC$ , which intersected by  $aM$ ,  $bM$ , give  $nm$  for the course of the shadow. To find the shadow of this object on the ground; procure the seat of  $i$ , as at  $b$ ; rule  $bH$ , and  $iM$ ; their intersection is hint sufficient. The reflection is merely a counterpart.

No. IV. Shews that however the rays from objects, &c. and their reflections may appear to differ, yet in reality they are exactly similar; so that, the supposed reflective depth in the water of  $CD$ , and  $EF$ , is equal in appearance to the distance between those objects and the radial intersections.

No. V. If the little figure standing on the hill, was supposed to wish to represent the reflections, &c. of these houses, he would be able to shew but a very small part of them, as in fact he sees little beside the house  $E$  and the tower  $D$ ; which shews the necessity of a good station from which objects may appear picturesque.

No. VI. Exhibits a variety of objects whose reflections explain themselves, being exact counterparts. Of the sticks  $D$ , and  $E$ , the first being upright, its reflection is upright also; but  $E$  being asslant, that part of it which is under the water, becomes *refracted* by the denser medium, and seems as it were broken, so that although it is a good rule to consider water as a mirror, yet by its transparency it sometimes differs in its effect.

END OF THE PLATES OF PERSPECTIVE.

## LECTURE IV.

LADIES AND GENTLEMEN,

**W**HILE on every subject which can be mentioned there may be various, and often contradictory, opinions, according to the aspects under which it is seen by different persons, or the different habits, inclinations, and temperaments of such persons, we need not wonder that, on the principles of art, and their application, the sentiments of professors should sometimes disagree. This happens on the study of perspective: while some masters despise that eye which does not (alone) sufficiently ascertain the natural appearances of objects, others think geometrical scrupulosity of representation indispensable. Shall I say that both these extremes are to be avoided? or, shall I rather commend them both, and advise to unite them? Geometry alone never yet composed a happy and pleasing picture; and if the effusions of practice, unregulated by just theory, may have attained to veracity and correctness, I have not been so happy as to meet with such instances.

But of late, since science is fashionable, and every offered assistance is generally received with avidity, it is much more common for artists to depend on the dogmas of science, than on the observation of nature; insomuch that geometry has been considered as the sovereign, rather than as the assistant, of perspective; and because hereby we procure such and such representations of objects, it has been asserted (somewhat prematurely, as I suppose) that those representations are conclusively accurate, and demonstrative.

I flatter myself, none of my auditors whom I have had the honour to address in preceding Lectures, will suppose me insensible to the advantages arising from mathematical assistance, or that I undervalue our obligations to a science, which alone has afforded, or can afford, certainty and exactness to the study of perspective; nevertheless I cannot entirely acquiesce in attributing irresistible puissance to geometrical inductions: nor do I think such assertions would have been made by writers on perspective, if they had extended their views, and considered NATURE as the supreme authority in the imitative arts.

But, since I avow this sentiment, I request your indulgence while I notice some differences between certain effects of geometry, compared with those of perspective; or rather, I shall offer remarks on a few particulars, in which the rules  
of

of both sciences are inadequate to the requisitions of art.

To define perspective, perhaps we might justly call it a regulated imitation of nature: in this imitation it receives much assistance from geometry; but in some instances geometry is quickly superseded, and even perspective fails in its application. We have already observed, that some articles are too minute, or trivial, to engage the attention of perspective; and the number of these might easily be enlarged to a very extensive catalogue, as will appear to your own reflections: others depend not on mathematical rules, but on the larger operations of nature; a reference to which, will not, I hope, be deemed impertinent. Should we request a mere geometrician to determine the boundaries of an extensive prospect, he would find the undertaking not only difficult, but impossible: for by geometry he would *prove*, that the height of a man being supposed five feet, the extent of his vision is confined by the horizon at about the distance of three miles, on level ground: whereas we really inspect much farther; because the same principle which occasions twilight (I mean the refraction of the air) elevates apparently the distances of the prospect, and renders them visible to us, although in fact they are below our horizon: much in the same manner

as a piece of money at the bottom of a fit vessel is rendered visible by the accession of water.

I confess it is seldom this fact, though constant, can be demonstrated on land, but at sea it is of perpetual utility; for hereby the tops of hills and lands are elevated in the air, and become discoverable at a distance of several leagues further off, than otherwise they could be: and this refractive power in the atmosphere is rendered more sensible by the greater distance wherein it may act, and the quality of its component vapours: to the very great benefit of some parts of our globe. "Very far north," says Captain JAMES, who wintered up Hudson's Bay, "we found the sun to rise twenty minutes before it should, and in the evening to remain about twenty minutes longer than it should:"—and this has the effect of shortening the polar winter a whole month; and of prolonging the cheerful sight of the sun, and of the moon, in those parts.

But not to one region is this principle confined, though perhaps this instance is: in the warmer climates of the east it has considerable influence. Dr. SHAW, speaking of ARABIA round about Mount Sinai, informs us, that when these deserts are sandy and level, the horizon is as fit for astronomical observations as at sea, which at a distance these parts nearly resemble.

It

It was there surprising to observe in what an extraordinary manner every object appeared to be magnified; for a shrub seemed as big as a tree, and a flock of achbobbas (birds the size of a capon) might be mistaken for a caravan of camels. "This," says he, "seems to advance about a quarter of a mile before us."

You will readily perceive, LADIES and GENTLEMEN, that to render this observation sensible and evident, and to demonstrate the inutility of close adherence to strict rules in *every* case, the instances selected are more remarkable than our temperate climate affords; but suffer me to add, that we are not without effects arising from this cause, which are more considerable in summer than in winter, and perhaps at morning, than at evening, twilight.

To apply this to the subject of our immediate attention, I think I may venture to say, not only that we see remoter objects than geometrically we ought to see, but also that objects situated at some distance from us, appear larger and more distinct than their geometrical situations would indicate.

Moreover, I cannot help thinking, that, in structures of very great extent, this principle has its effect, and that the remoter parts of such structures are not always so greatly diminished as we see them represented; for, if they were,  
such

such ranges of building as the palace of Persepolis, or as some of the Italian aqueducts, or even some of our own streets, would be nearly invisible at their further ends. Neither, in my opinion, are they always so evanescent: for not only in dimensions, but also in effect, many objects evade the rules of geometry; as it does not always happen that their force decreases according to their geometrical distances, but by a variety of accidents, arising from the vivacity of the light, or from the rarity or density of the circumambient air, they vary considerably from what should be their *prescribed* effects. Nor indeed is perspective itself infallible here; for if you suppose yourselves, LADIES and GENTLEMEN, to have taken the most accurate view (of a distant town for instance) while the sun has been obscured by clouds, should they be suddenly dissipated, and the sun shine full on that particular spot, it would scarce seem the same place it did before: or, some gilded weathercock, just moved by a little shift of wind, may gleam irregularity into the *keeping* of the piece. I have often noticed houses at a distance, perhaps barely sufficient to distinguish them to be houses, when suddenly, by the clouds parting, the sun-beams have been reflected with great splendor, from *windows* before utterly imperceptible. This often happens in the evening, to houses built on hills,

and

and to other elevated objects: in fact, the article of light is among those least subject to rules; and, while undoubtedly an indispensable ingredient, is perhaps the most deceptive of any in a composition. Is this an advantage, or a disadvantage? An advantage, very certainly, to those who know how to improve it; for, as the variety of accidents which occasion sudden transitions of light is endless, it furnishes innumerable opportunities for selection and choice, to whoever has skill to choose aright.

You must often have noticed this:—While the sky has been darkened with clouds, sometimes they would separate, and permit a broad passage for the sun-beams; then, gradually closing, they have contracted the illumination to a mere span; and the effect of this light has been various, according to the objects whereon it has fallen; whether on fields, on meadows, on waters, on towns, on gilded turrets, or on humble thatch: whether on barren waste, or on cultivated land; on woods, or parks, or corn-fields. Which latter objects, be it observed, have, when agitated by the wind, a mighty agreeable movement peculiar to themselves, in the gradual bending and waving of the golden grain; to which effect the light

29 Q 2 very

very much contributes. If to the idea of clouds and their intervals you add that of a brisk wind impelling them in rapid succession after each other, you may easily imagine its effect on the light, and its perpetual change of illuminated appearances; every object being by turns enlightened, and darkened; now resplendent, now gloomy; presently emerging from obscurity into demi-tint, or from demi-tint becoming obscure.

It is nevertheless certain, that these accidents, although exceptions to general rules, by no means supersede their utility: they only prove that Nature offers an infinite variety for our amusement, recreation, and study. Happy the Genius, whose enlightened skill attains to an agreeable imitation of them! Happy the Artist, whose works, instead of tedious similarity, present those striking and energetic compositions, which are visible alone to the ingenious and well-informed!

This may be a proper place to enquire by what principles some objects, or parts of objects, appear to advance, and others to retire. It is, because the light from the nearest part of the surface has so much greater force on the eye than that from the further end: this effect, although dependent on the principles of perspective,

tive, is yet very much changed by the obliquity of the surface, the situation of the luminary, or the nature of the object; all which causes vary the force of reflection.

In looking at this mahogany table, the edge nearest the eye seems enlightened; this light, at a very small distance indeed, becomes moderated; a little further off is yet more decreased; and, as we advance toward the other extremity, it ceases to be light, and may rather be denominated a slight shade. This effect is very regular and constant, because the surface is uniform; and, consequently, its obliquity and declination uniform also: but, if in any part of the table we place a surface somewhat more elevated in its position (as this drawing-board), the nearest end of that surface does not perfectly correspond in its degree of light with that part of the table where it is placed; but the light is some degrees brighter, and, as it were, sets off afresh on this new surface from its hither end, gradually decreasing to its further end. The waving of the grain in a corn-field, whose agreeable movement we have already noticed, depends much on this; the various directions of the undulating surface perpetually distinguishing themselves by breaking the uniformity of the general plane.

Q<sup>2</sup>

But,

But, if instead of a flat superficies we observe this circular vase, the gradation of tint is much quicker, and, from the brightest light to the strongest dark, is a small distance in proportion to the circumference of the object. The brilliancy of polished metallic bodies depends entirely on this principle; which, however regular in itself, is too much diversified by the matter, form, and situation of objects, to submit to the rules of perspective; since these sources of variety are capable of infinite diversity. This principle, together with accurate understanding in the article of reflections, is among the higher Studies of Art; and, when happily applied, nothing more decisively demonstrates superior abilities, or the GREAT Master: for not only veracity, and I may add deception, arises from hence, but also harmony, force, character, and repose.

A few words on the Article REFLECTION in shadow may, with much propriety, claim our attention.

I know not how better to explain this article, than by requesting you, LADIES and GENTLEMEN, to recollect the order in which we have traced the retiring shade: correspondent thereto, we observe that the end nearest the eye of any surface in shadow, seems more deeply shaded than the further end; the shadow weakening

ening by degrees, and becoming lighter and lighter. The very gradual diminution of the force of the shadow prevents this effect from being conspicuous in adjacent parts; but, by comparison of the extremes, it is apparent and unquestionable. The result is, that greater strength of light, accompanied by greater strength of shade, brings forward objects to which such opposition is applied; while correspondent deprivation, lowering, or moderation, of both, or mutual advances toward each other, produces the appearance of recession and distance.

The cause of this is perhaps not very difficult to assign: for, if we consider that the rays of light are perpetually diverging in every possible direction, it follows, that a more extended space affords room and opportunity for the action of a much greater number of such rays, than a lesser space: therefore, although, by its nearness to our sight, the hither end of a surface appear very dark; yet the air, being illuminated, interposes and mingles so much of its illumination between the distances of that surface and our eye, as renders the remote shadow unequal in strength to the nearer. Hence it appears, that the air moderates and diminishes the resplendence of the light, and  
also

also the obscurity of the shadow, endeavouring, as it were, to impart its own colour to both: and this effect it obtains, if the space surveyed be sufficiently extensive; as in the azure colour of distant mountains, and in other particulars. This reasoning is strengthened by remarking, that when the air is deprived of particles of light, every object, distance, figure, &c. is concealed, and disappears.

The foregoing analysis may be adapted, not only to objects deprived of light, but also to shadows themselves; which, by distance from their origin, and cause, become less determined, defined, and forcible. When the edge of a shadow falls on a superficies near to the shadowing body, the outline and form of the shadow, as derived from the shadowing body, is very accurately and sharply represented; but, when the object intercepting the light is at some distance from the superficies whereon its shadow falls, the outline is confused, weak, and indeterminate; because the adjacent rays of light are more in number, more mingled, and more rebounding into the shadow, as the interval is increased.

The article of shadows is very important; they contribute greatly to distinguish distances, and to separate objects, especially objects re-  
lated

lated in colour: two walls, for instance, one behind the other, having but a little interval of separation, may appear as a continuation of each other; but, if the direction of the light be in the same plane as the walls supposed, it will shine *between* them, and thus part them: or, if the shadow of one falls on the other, it will equally imply a distance.

When a shadow is of considerable extent, objects immersed in it are not enlightened from the same quarter as the object casting the shadow, but by reflections from the opposite quarter; so that, the lights and shadows are situated *reversely*. If a person stand under the shadow of a high wall, which shadow falls to the left, he will receive a reflected light from the left; and will cast, to the right, a shadow on the wall against which he stands: always supposing no impediment interposed, but the air to be free.

Reflections are very much confused and intermingled by partaking of luminous rays deflected from other bodies; and especially, if the reflecting object be near the shadow, it very strongly enlightens it: as that Lady's white dress reflects so clearly on the shadowed flap of the table, as to *whiten* the shadow.

These particulars, and many others allied to them, are by no means proper subjects of perspective

pective regulation; they must be studied from nature at large: as must also the reflections of colours; for every colour may be considered as emitting rays according to its tint, and these rays colour (or rather, perhaps, discolour) objects on which they fall. Thus, when a group of ladies stand together, the white dress of one will receive a tinge from the coloured dresses of the others: from a pink, it will become pinkish; from a green, greenish, and so on: while, like a sociable neighbour, it will return the compliment, and render whitish those parts of the coloured dresses nearest to it. On the same principle, when the sun shines on to a red carpet, the reflection will tinge the ceiling with a reddish hue, and impart a whitish tint in return.

Let us just observe here, that we may consider a reflection as equal to half the force of the direct ray; the re-reflection as equal to half of the first; thus diminishing half its strength continually, it soon becomes too feeble to claim our regard.

It is not very common to consider these principles as forming part of perspective; yet, as they seem to me very closely allied to the science, I have ventured to introduce them; and perhaps, if more attention to the effects and appearances of Nature were frequently introduced

introduced into treatises on the subject, it might relieve and entertain, as well as direct and instruct, the Student, with great advantage.

After having in some particulars speculated, as it were, on extensive and remote effects, I shall now, LADIES and GENTLEMEN, request your attention to what more immediately belongs to ourselves; for, after we have investigated objects of every kind, we return with peculiar complacency to the consideration of the human figure.

We have formerly noticed the proportions, the movements, the appearances, of the figure; and the principles we adduced are unquestionably of great utility: but by this time I may venture to hope that we are prepared to regard them also as influenced by Perspective. An inanimate subject being void of motion, may be measured to the utmost nicety, and the correspondence of its parts be determined minutely; but in a subject perpetually shifting its situation, and varying its forms, this accuracy is not to be expected. Not that I am about to undervalue the measures to which the parts have been subjected; but to notice some circumstances which may be of importance.

When I stretch out my arm to its full extent, that person to whom it happens to be in a

straight line, sees, properly speaking, little of the arm—but the hand might, for aught, that appears to him, be united to the shoulder. This is an extreme instance of a principle denominated *foreshortening*. The same may be the situation of the leg: and, in fact, all the members are capable of it from joint to joint, in a greater or less degree. To comprehend this more fully, you have only to survey a plaster figure; whose members, as you move round it, will assume an infinite variety of aspects. Suppose, for instance, it be a kneeling figure, in which case the leg from the knee to the foot is parallel to the ground; on one side of the figure you see the whole leg at its full extent; walk round it a little, the distance between the knee and foot seems gradually to lessen and lessen, till, at last, after seeming approximation, the further parts are greatly concealed by the nearer parts: or, at least, they become more receding, and, as it were, flying off. This is evidently the effect of Perspective; but is reducible to no laws whose application is determinable, since what may apply to one member, &c. may not suit another.

Foreshortening is perhaps of the greatest consequence, where only this flying off, or recession, is to be represented: and such in-

stances are perpetually occurring; no attitude can be without them; the principle runs through every part of the figure; and, according to the dimensions of any part, is more or less sensible. Thus the arm laid on the table, is foreshortened (to a spectator) from the wrist to the elbow; the fingers are foreshortened in some respect or other, be the position of the hand what it may. In our imitation of this effect, beside accuracy of outline, the application of that retiring shade we have already noticed, is principally to be depended on: for, by its influence in moderating the brilliancy of the parts foreshortened, it seems to increase the vivacity and force of those where the light strikes; *e. gr.* the front, principally: or wherever the parts receive another direction, as in the already supposed case of the drawing-board; so that, it appears, foreshortening and the retiring shade are very closely allied.

The retiring shadow may also elucidate (more, I think, than is usually supposed) the nature of *finishing*; which is nothing more than bestowing on each part, or spot, that tone of colour and tint proper to it. Thus, suppose the brightest light to be in the middle of an object; a globe, if you please; around this bright light the tint is lowered one degree,

around that two degrees, then three degrees, and so on; retiring from the bright to the obscure. On this principle, a man's head may be finished, being rotund; so may most, if not all, members of the body: the various inflections of the parts catching, indeed, various lights, yet not superseding the general principle, or keeping.

Keeping is, I apprehend, neither more nor less than nicely adjusting and representing the various tones and tints proper to each part; and is readily intelligible from what has been just delivered. Strong lights and shades are proper in front, and in the principal stations, where force is required; and weaker, gradated, and more tender colours in subjects meant to retire.

LADIES and GENTLEMEN, I have thus offered my sentiments on the subject of PERSPECTIVE as succinctly as possible, and as clearly as I could: may I flatter myself that I have been well understood by my auditory? The importance, the universality, the constant recurrence of these principles, induce me to wish they were generally promulgated, not in the shackles of technical terms, or of abstruse disquisition, but in easy lessons, and colloquial language: I have done my endeavour, and  
heartily

heartily wish the example may be prevalent. I am not afraid that (as is said among the faculty, if the simplicity of remedies were known, their efficacy would be denied)—I am not afraid that the facility of the rules I have laid down, should hinder either their application, or their popularity; since, I think, to say of principles they are correct, and to add to correctness, simple and easy, is the highest panegyric of scientific instruction.

A panegyric on the principles of Perspective would be a noble subject for the eloquence of an orator! he might shew its wonders in the microscope, which renders visible animalcula thousands of times too small for human vision; he might congratulate his hearers on its utility, as connected with our daily occupations and exigencies; he might trace its effect in the solar orb, and observe the peculiarity of the planetary shadows; he might demonstrate the connection of perspective with the azure heavens, and calculate thereby the various stations of the stellar fires; he might amaze his hearers with the distances of the brightest, and astonish them at the intervals of the paler: those but discernible by the art of man, he might express by the days, or the weeks, or the months, of the passage of their light; and might perhaps venture—No, let him stand rapt in  
reverence

reverence to that power and goodness, which has imparted to humanity such intellectual capacity, and energetic genius !

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\* \* To those of our readers who may not have at hand a plaster figure proper to elucidate the principles of *foreshortening*, we recommend the inspection of a coach wheel, as a simple instance in point. In looking at the wheel in front, all the spokes seem equal and alike ; but in an oblique view, they are greatly changed : the uprights preserving their dimensions, while those on each side are apparently lessened, in proportion to their nearness to the horizontal spokes ; which are more *foreshortened* than any others.

††† The peculiarity of the planetary shadows is, their diminution as they are prolonged ; for the sun being very superior in size and extent, the shadows of such bodies (as of our earth for instance) are constantly converging, till, at length, they terminate in a point : so that the rays of the sun are not *absolutely* parallel in themselves, though parallel for every purpose of perspective.

§§§ The principles generally adopted in the LECTURES, are those of Dr. BROOK TAYLOR.

End of the PRINCIPLES of PERSPECTIVE.

ARCHI-

## ARCHITECTURE.

## LECTURE I.

LADIES and GENTLEMEN,

**I**F “the proper study of mankind is man,” a very proper part of that study is to trace the efforts of human ingenuity, and the progress of human genius, and application. These qualities are nowhere more apparent than in man’s inventions to supply the necessities which continually surround him, and to secure himself against those evils to which his degraded condition exposes him. Time was, indeed, when he dreaded no evil, nor sought security; but, safe in his lawful territories, ruled and reigned; a paradise his palace. For man is usually supposed to have dwelt beneath the spreading shade, and to have resided in the verdant grove: or, if he sought other than umbrageous retirement, it was not the gloomy cavern, nor the melancholy cave; neither antres vast nor deserts wild were his recess: his bower was

Chosen by the sovereign planter, when he fram’d  
All things to man’s delightful use; the roof

OF

Of thickest covert was inwoven shade :

Laurel and Myrtle, and what higher grew

Of firm and fragrant leaf ; on either side

Acanthus, and each odorous bushy shrub

Fenc'd up the verdant wall ; each beauteous flow'r,

Iris all hues, Roses, and Jessamine

Rear'd high their flourish'd heads between, and wrought

Mosaic ; underfoot the Violet,

Crocus, and Hyacinth, with rich inlay

Broider'd the ground, more colour'd than with stone

Of costliest emblem :—

The traces of this "shady lodge" are not entirely obliterated among his posterity ; nor will be, while *bets* (a tree) bears any resemblance to *buts*, or its derivatives, in more than one national language.

What might be his abode after his expulsion from bliss, or what kind of city CAIN might erect, we know not : possibly the fortress of his security nothing exceeded a composition of mud-walls, and reeds ; rather exposing than concealing the trembling vagabond.

I confess, among my speculations, I think the Antediluvians had little occasion for the study of Architecture ; for we must not conceive natural things to be then as we experience them now. It is likely, the earth was not only more fertile, but also more temperate ; the seasons less rigorous, and the wants of human life not so numerous.

merous. The deluge, which changed considerably the face of the earth, most probably changed its temperature; and perhaps, also, the deluge was the first continued rain which fell, and not less astonishing to the sufferers than if it had been fire instead of water. How then was the earth refreshed? By copious dews. Those parts at present watered by dews, are not the least fertile; and certainly they might afford moisture sufficient to the earth in full vigour, and the heat of the sun moderate, uniform, and equal. To this hypothesis agrees the extreme length of human life, not then affected by atmospherical vicissitudes; and, in my opinion, the phenomenon of the rain-bow: for if no rain, no dense compacted clouds; if no clouds, no rain-bow, the offspring of clouds: this pacific token originating after the waters of the flood.

But early in succeeding ages mankind attained to architectural knowledge. Shall we enquire what might be its progress?—Any single family is but weak, wherever situated; but the family of NOAH had very considerable advantages arising from that terror and dread of them, which possessed the ferocious part of the brute creation. Those branches of his posterity which separated from the original stock, had to encounter with complicated difficulties.

Trace in your imagination, LADIES and

GENTLEMEN, a small society, parting, whether by choice or compulsion, from the tribe to which they belonged, and wandering in quest of a distant settlement. Imagine the vigorous and heroic husband, attended by the no less heroic and constant partner of his bosom: if to these you add the prattling offspring, you increase the anxieties of the expedition. Arrived in an unknown part, the setting sun commands retirement; to remain exposed is dangerous; and how shall the weaker female, and the tender youth, scale the stately tree, and lodge among the branches? Where then shall they find security?—In the nearest excavation of the ground, or perhaps in the fissure of a rock. Let them first see that no savage quadruped harbours there, that no hissing serpent has made it his retreat; let them explore their dwelling, and then fence it. The forest yields its pliant twigs, and the trees their wattling branches, and thus they compose a habitation: this shelters them from the summer's sun, from the winter's deluge and frost; and this becomes their abode.

Increasing posterity increases strength, and mutual assistance procures additional conveniences; till, by degrees, the father of the family becomes founder of a town, and erects the standards of his dwelling: not now from the first branches which offer, but he selects the straightest trees, and explores the recesses of the woods:

woods: not now in the first spot that offers; but he consults the union of accommodation to security, and the benefits of a copious stream to those of a fertile soil. The sturdy youth obey the counsels of age, their unremitting industry at length attains its purposes, and they congratulate themselves on having vanquished their difficulties and deposited the uprights; these support the beams of the roof; the interstices they fill with the smaller boughs, and plaster with tenacious clay. Thus mankind still are beholden to the tree for a dwelling, and of a tree form their habitation. Who would suppose this the origin of extensive cities, and of royal palaces? Yet such was the commencement of Nineveh, of Babylon, of Rome; and to some such beginning is our opulent metropolis indebted for its existence.

The progress of Art is like that of the scarce noticed fountain, which silently glides along the banks a humble water-course; by degrees it becomes a brook, and increases to a rivulet; capable now of utility, it rises into consequence, spreads into a rapid river, diffuses convenience and wealth around its banks, and receives a thousand blessings as it rolls to the ocean.

It is not my intention to notice the varieties of Architecture which obtain in different nations; it is of small consequence to us, on this occasion, to know that the Samoiedes dwell under ground, and pass their night of winter without

without wishing for a window ; or that certain natives of America build their houses in the trees, to avoid the sweeping floods ; or that many of the towns in China are constructed on the watery element, and cover the surface of of rivers. Different circumstances, different wants, different opinions, controul mankind ; whose ingenuity is never more apparent than in accommodating itself to this diversity, and often in rendering it a source of advantage. That ornamental species of architecture which we have adopted, is to be traced much nearer to our own climate, amid the superstition of Egypt, and the science of Greece.

I am well aware, it has been supposed that divine instruction imparted architectural knowledge, and that among the favoured nation we are to look for its institution, or at least for its advancement and regularity. With all due respect to whatever seems to support this opinion, I beg leave to engage your thoughts to another and more probable system.

Before science of any kind can make considerable progress, civilized life must be advanced to some degree of perfection ; for not till after a community possesses members sufficient for a distinct profession to be assigned to each, is much improvement to be expected. Alone, or nearly, a man must concentrate every talent in himself, must himself supply the necessities of life one after another ;  
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and these are too numerous, too rapidly returning, to permit him to acquire a dexterity in obviating one, before his attention is required to its successor. This reasoning, if just, as applied to the necessities of life, is greatly strengthened when articles of secondary concern are in question; insomuch, that after every supposable desire of the conveniences, the elegancies of life must be quitted: for what inclination has the already wearied person to seek after any thing not essential to his comfort, when the acquisition of indispensables has been sufficiently fatiguing?

But beside the additional security and strength of numbers, population is one source of wealth; and unquestionably stimulates emulation. A splendid dress, equipage, or habitation, is useless in a desert; while in a city it marks a distinction, is supposed (how truly is not our question) to confer dignity, and to separate between the ranks of life.

When a profession is sufficiently honourable, or lucrative, to engage the attention of several practitioners, then we hope for improvements and advances. The desire of fame, or of fortune, will animate each professor's endeavours to surpass his competitors, and to render himself conspicuous by superior abilities.

I wish I was not obliged to add as another occasion of improvement, that superstition has greatly contributed to the assistance of Art: while men cherished ideas of paying their Deity the greatest honours by the most expensive devotions, no wonder they should endeavour to propitiate him by extravagant structures. These, moreover, after a time, became the boast of city against city, and country against country; thereby involving national honour as well as local superstition.

The first temples were like the first dwellings, simple in construction, and small in dimensions: the supposed habitation of a God, or a Goddess, differed little from the real habitation of the votary. Perhaps a simple cabin; or if a hedge, a mound of earth, or other small inclosure surrounded it, this slight fence was thought sufficient to indicate its consecration, and to prevent intrusion. Afterwards, when the support of an officiator was deemed honourable to the Divinity, the temple must be augmented to accommodate the residents; and strange indeed would it be, if the residents in one temple did not wish to honour their tutelary Deity with more costly offerings, in more sumptuous structures, and with more numerous worshippers than their rivals. These required enlarged dimensions of the edifice, and enlarged  
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dimensions required additional skill in the architect. If the longer beams were not better sustained than the shorter, they would bend, perhaps break; if the roof was not better constructed, it would alarm, and might destroy the votaries: the beams, therefore, were propped with supports, and Geometry was called in to adjust the roof. It is true, no *wooden* structures remain to demonstrate this hypothesis, yet in some *stone* buildings are preserved very probable vestiges of such a progress.

The position of a column in the middle of an entry, seems by no means so convenient as to be supposed desirable; but it may here support and prop the incumbent weight; and, certainly, a row of columns in the middle of an edifice, from end to end, seems calculated for no superior purpose, being equally foreign from use and beauty. In fact, the awkwardness of this position was soon discovered, and columns were removed to a proportionate distance on each side the center; thereby acquiring uniformity at the same time they contributed strength.

Perhaps the word column ought not to be used as descriptive of these supports; they were probably mere upright beams; their branches lopped, but their trunks rough as nature furnished them; probably too the idea of a capital as an ornament might be suggested by

an additional block to render one or other of sufficient length: and thus might some happy genius, pleased with the appearance of a *head-piece*, and impressed with the beauty of uniformity, unite by rule what before was the effect of chance, and originate the rudimental principles of what we now term an ORDER. This appears to me as likely an account of that strange peculiarity in the Doric order (undoubtedly the most ancient), of having no base; but in all its remaining early specimens, going straight into the ground, as the commonly received supposition of its resemblance to the human frame; which can be satisfactory only to those who imagine *that column* was anciently without feet.

We have thus trod the first steps in this enquiry, and have traced the progress of architecture to the erection of a covered house, of some extent, for permitting attempts at splendid worship: I know not how far I may trespass, by calling your attention to temples, which were not covered; but as this particular is nearly connected with the British islands, it needs, I hope, little apology, to an assembly of British LADIES and GENTLEMEN.

That the primitive dwelling of man was probably beneath a tree, was hinted early in this discourse: there, indulged in converse with his Maker, he had undoubtedly passed his happiest moments,

moments. Hence it seems very natural, that afterwards, trees, especially trees of venerable aspect, and extensive shade, should be chosen as places of devotion. It is somewhat unhappy, that, in our translation of the scriptures, the passages which relate to Abraham's sojournings in the *plains* of Moreh, were not rendered by the *oaks* of Moreh, for such is the import of the word; and many of the transactions recorded would be more intelligible, had this been attended to: however this be, we find groves in ancient times considered as necessary parts of devotional structures, and happy were the temples around which the oaks flourished. But in no part of the world was the oak in higher honour than in Britain, where for ages every solemnity was performed beneath it, and every important consultation and assembly held under its branches: and afterwards, when stones were erected into temples, still oaks were regarded as sacred accessaries, Druid temples were not like those we have been considering, properly buildings; but arrangements of stones in the nature of an avenue, leading to other arrangements also of stones, which surrounded the massive altar: for they held it impious, to interpose any impediment between themselves and the object of their supplications.

The only instance, in which, as I recollect,

they even admitted stones placed on others, was those surrounding the altar ; where they placed on every two, a third, laid from top to top, and thereby uniting them : but these stones were not hewn into form, or wrought into elegance ; they possessed neither ornament nor polish, but, rough as they were found, were deposited with infinite labour in the place assigned them. Much debate has been maintained concerning the learning of the Druids : I shall only say, that while they could contrive to remove and to adjust such enormous masses, as would embarrass the most expert of our modern architects, even in this age of science, their works bear testimony to their abilities ; and, in part, supply the absence of recording volumes : which they never used.

Druidical erections were generally uniform and similar ; any one is nearly a specimen of all : whereas the temples of the Eastern nations continued increasing in dimensions and magnificence. Having composed one row of columns, with little foresight, a second distribution into two rows was added to remedy the defects of the first, and its obstruction to the interior of the temple ; but, beside internal decoration or convenience, external ornament was attentively studied. The frontispiece of the building was an object of importance, and received much  
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embellishment; first pilasters, or semi-pillars, little projecting from its walls; then a range of columns somewhat advanced from the sacred edifice; afterwards a second range was introduced, and at length a third to complete the entrance. By similar degrees were equal honours bestowed on the sides of buildings; and ranges of pillars, forming walks for the contemplative, were constructed on their wings; for since it was not possible, in all places where temples were situated, to surround them with groves, architects endeavouring to supply that deficiency, planted, as it were, columns in their stead: hereby procuring opportunity of manifesting their abilities in decoration, contrivance, and magnificence.

The internal distribution of their temples deserves attention; for think not the holy and most holy were equally accessible: the magnificence of the portico first struck the mind with solemnity, before the worshippers entered the sacred edifice; which was not on all occasions; for sacrifices were usually offered in the area *before* the temple, not inside the building, which was totally dark, having no windows; and little light from the door-way. Having passed the portico, the door admitted into the first apartment, beyond which was the adytum,

or

or most profound recess. Agreeable to these ideas, and in traditionary imitation of the venerable gloom of consecrated groves, most of the Pagan rites within their temples were performed in obscurity; or torches and lamps added a dim lustre to the mystic ceremonies. Such was their general construction: but temples dedicated to many deities, were constantly open at the top; whether, supposing such an assembly like that of the Gods on Olympus, or whether, to provide against mistakes in votaries, who might worship a wrong God of the *assortment*, I will not determine.

To communicate some idea of the extreme magnitude of that scale on which many places of worship were composed, I select HERODOTUS's description of the temple of BURASTIS in Egypt.

The approach to it was by a road, which, separating two canals, had the appearance of an island; each canal being one hundred feet wide, and reaching from the Nile to the front of the edifice. The gates which formed the first entry were sixty feet high, and the size of their ornamental figures six cubits. The inclosure contained a wood of sacred trees, very high, planted around the body of the temple, wherein was the statue of the Goddess; each  
side

side of the inclosure was a furlong in length. Near the entry was a high road, paved, conducting to the public square, and bordered on each side by lofty trees, aspiring to the sky.

The magnificence of SOLOMON's temple justly ranked it pre-eminent among the wonders of the world, by its decorations rather than its dimensions: and when we consider the happy coincidence of riches, skill, and devotional resolution, which distinguished its erector, we readily admit the extreme magnificence of SOLOMON's sacred edifice. The temples of Egypt are in ruins; the temple of SOLOMON has long since disappeared; the ploughshare of desolation has uprooted its foundations: of other most superb instances of human abilities scarce any traces remain; the Pyramids alone, firm by their erection, and permanent by their form, continue to demonstrate the veracity of those accounts which describe contemporary or posterior erections: these are a peculiar species of architecture, probably sepulchral, rather than for worship, unless both ideas were united.

A few temples in Greece, indeed, just serve to excite the melancholy reflections of fallen grandeur, and to relate the ravages of barbarism and ignorance; if beside, the laborious and venturesome architect can trace from pillar

to pillar, and from arch to arch, those proportions which once infused solemnity into the spectator, and elegance into the building, it is all the age of PERICLES can boast. And what further can we say of the ruins of Rome? The immense Thermæ of voluptuous luxury; the noble Temples of magnificent superstition: whatever was costly, or sumptuous; whatever was splendid, and exquisite, were in Rome: In Rome, where we now meet with here and there a temple remaining, but changed; here and there an obelisk, but broken; here and there a portico, a pillar, a frontispiece, but mutilated and imperfect. Triumphal arches, designed to perpetuate to eternity the actions of Emperors and warriors, are decayed; and consecrated Apotheosi (attributes of Deity) are mouldered into dust: yet enough remains to render credible the writings of the historian, and to excite admiration at the abilities of ancient Artists.

Mark how the dread PANTHEON stands;

Amid the domes of modern hands,

Amid the toys of modern state,

How nobly, how severely great!

These the Northern ravagers destroyed:  
But the Northern ravagers had their taste, and  
their style, and their skill too, and let us do them  
the justice to acknowledge, that it was not  
deficient

deficient in expression: like their poetry, of animated imagery, and bold phraseology, wild and irregular, yet often pathetic and lofty, void of conduct and plan, yet vigorous and affecting; so their architecture was peculiar and barbarous; dissimilar in its parts, multifarious and injudicious in its ornaments; confused and perplexed in its distribution. But if the ages of ignorance wanted gloom, the Gothic architecture was gloomy; it was correspondent to the hood, the cowl, the beads, the superstition of the times, and even now has great effect in producing solemnity and reverence, and striking with awe the man of observation. Nor were the mechanical parts of architecture unknown; nor would many of our present architects be able to surpass the bold projection, and the lofty roof, which Gothic magnificence has left as monuments of its abilities and emulation.

This is a striking instance of the necessity of order; for had the architects of Gothic times studied uniformity and symmetry, I think it not impossible they might have discarded by degrees those labyrinthine ornaments, with which they endeavoured to conceal disproportion; and by reducing their scientific principles to regularity and plan, might have shewn,

that their manner was susceptible of effects, peculiar and restricted I allow, yet effects not always disgusting, or even despicable,

Let me be permitted to consider the peculiarities of national style, as no insuperable hindrances to merit: According to the opportunities of a person's information; so should we estimate his productions. What would be very inferior from an Artist of Europe, would deserve applause from an Indian of America, The pictures of *QUINTIN MATSYS*, if not equal to *RAFFAELLE*, are highly laudable from the blacksmith of Antwerp; the carvings of the Islanders in the South Sea, though not comparable to *PHIDIAS* and *CLEOMENES*, are instances of much patience and skill: And for my own part, I would even praise some labours of the Chinese, would their vanity but allow that Europeans also possess two eyes as well as themselves.

Be it always remembered, that the natural and moral situations of mankind occasion diversity of sentiments, and of necessities: consequently, diversity of inventions, to satisfy the principles of the first, and to prevent the inconveniences of the latter. Thus, in Egypt, a country without rain, but of excessive heat, the roofs of their temples were almost flat;  
for

for what need had they of a water-course?— But to guard against the sultry climate, the edifices were low in proportion to their breadth, and every method was adopted to procure a cooling shade, or a current of refrigerating air. To accomplish this, a forest of pillars supported an enormous superstructure, and the colonnade almost forbade the light of the sun, that it might exclude his beams.

Greece had rain, and the roofs were elevated to throw it off. Greece had the cooling breeze, and might venture to lengthen the column from four or five diameters, to eight or ten : Greece was addicted to mirth and festivity, and the buildings were correspondently cheerful : elegant proportion, therefore, was studied here ; and to adorn their edifices with splendor, was agreeable to the disposition of a people so “ merry as the Greeks :” while the voluptuous Roman expended his riches on decoration ; covered with ornament every part of his structure, in defiance of expence ; and lavished in wanton effusions of magnificent sumptuosity, the ill-gotten revenues of conquered provinces.

There remains yet to notice an order of religious buildings, different in many respects from any of the former ; for Christianity,

though at first obliged by persecution to perform in obscurity much of its congregational devotion, yet desires not obscurity as agreeable to its genius. On the contrary, when well understood, it is cheerful and animating:—What has it therefore to do with the darkness of the oracular cave, or the madness of midnight orgies? it has no mysteries forbidden to be divulged on pain of death; no (*aporreta mysteria*) things too *sacred*; no, says the Apostle, using the same term, things too *vile* to be disclosed. The devotional structures of Christianity, therefore, may desire windows, and request spectators; like him, who, when promised by his architect, that his house should be so constructed, as not to be inspected;—"rather," said he, "let what passes there be open to all beholders:" or like him, who wished for a window in his breast, that the integrity of his mind might be visible to all. Yet, with cheerfulness combining solemnity, the religious edifices of the present dispensation are, happily calculated, in their principal requisitions, to afford ample scope for the abilities of an architect. We have in our own country abundant instances in proof of this assertion; but one may be sufficient: whoever has examined the cathedral of St. PAUL at London, has seen mag-

magnificence in proportion, and regularity in distribution, united to a remarkable lightness in construction : Strong, not heavy ; elegant, not gaudy ; and perhaps as happy an instance as exists of the *simplex munditiis* ; neither penurious, nor extravagant.

It is natural, that the principal peculiarities which distinguish the religious edifices of the darker ages, should obtain in their civil erections. When superstition enveloped the mind in gloom, no wonder the mansion was rather a castle than a house : the contracted window just admitted light enough to exchange darkness for obscurity ; and to permit that hospitality, which, in some degree, corrected the ferocity of ignorance. But as learning dissipated the clouds of barbarism, the advantages of a just taste became more conspicuous, and gradually displayed themselves in the superiority they imparted to domestic residences. Hence, in towns, splendid palaces, magnificent offices, comfortable dwellings, and spacious streets ; in the country, noble seats, and decorated retirements ; the elegant pleasures of a gentleman's villa, or the salubrious enjoyments of the ornamented farm.

With regret, LADIES and GENTLEMEN, I omit to instance correspondent improvement in  
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the public buildings of the British nation: our royal palace, our senate houses (which should be national) and most of our public offices, are, and till lately *all* were, unworthy this great people. We have made a beginning: posterity may complete the undertaking.

At present, I apprehend, Architecture is no where more cultivated, or better understood, than in England; many seats of our nobility and gentry support this opinion: and though in most of our towns, our brick edifices equal not in appearance the stone buildings of certain cities abroad; yet, in finishing, in convenience, in distribution, and in neatness, we very much excel them: and while the real enjoyments of life comprise more intrinsic value and consequence than the tinsel of external finery, may this distinction ever be characteristic of the British Nation.

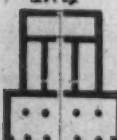
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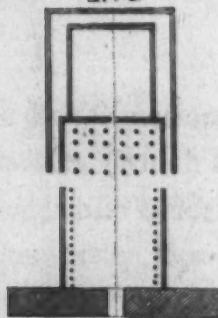
N<sup>o</sup> 1  


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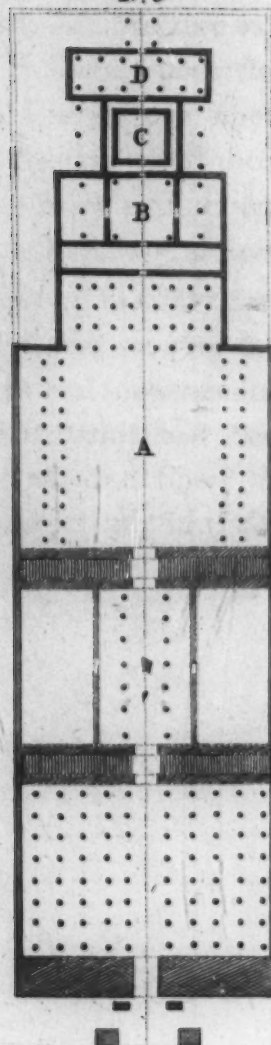

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## OBSERVATIONS

*On the Plates belonging to LECTURE I.*

## ARCHITECTURE.

## P L A T E I.

No. I. **P**LAN of a simple cabin, or primitive dwelling: and may be conceived as representing also a primitive structure for worship; supposed among the Egyptians, Phœnicians, or other early people.

No. II. A similar cabin; but surrounded by an inclosure, and defended by a hedge, a wall, or some other simple defence, indicatory of sacredness.

No. III. An edifice, whose ruins still exist at Sienna, in Egypt: by the simplicity of its structure, it seems allied to the former.

The body of the building is preceded by a portico much larger than itself, having only *one* row of columns. This edifice has been thought to be an observatory; but that does not prevent its having been a temple also. The inclosure is to be conceived as correspondent to the enlarged proportions of the edifice: this article must evidently be regulated by circumstances of convenience or ability, and is therefore omitted.

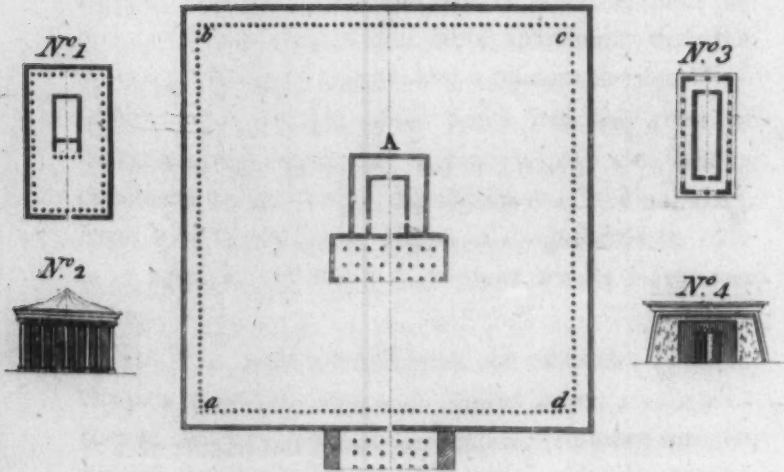
No. IV. A temple, whose ruins are at Essnay in Egypt. This porch had *two* rows of columns; and the temple itself is divided into more apartments than the others, probably to accomodate a resident family.

No. V. A temple whose porch had *four* rows of columns; and which had in front a large area, with a colonnade on the sides. By the space of the building, from wall to wall, this edifice is conjectured to have been open at the top. The ruins are in Egypt, at Etfou.

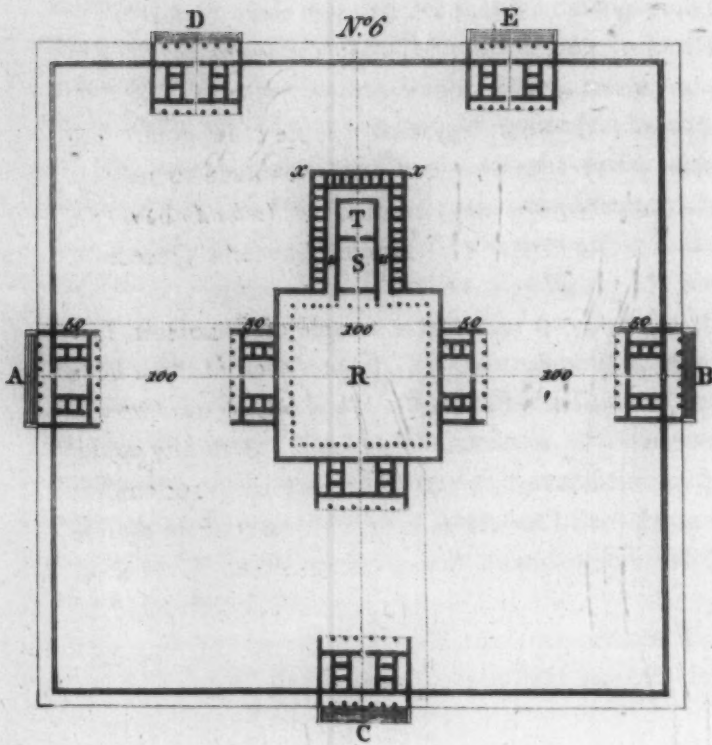
No. VI. Exhibits the immense additions made to temples in process of time: here we have (1) (at bottom of the plan) prodigious obelisks, or other decorations of that nature, for the door-way. Having entered the building, we have (2) an extensive and multiplied colonnade; in fact, a forest of pillars: having passed another door-way, we have (3) another colonnade (of single columns), and probably open at top, in the center at least; which leads into an open square (A) in front of the temple itself, colonnaded on the sides, with double ranges of pillars (5). A very magnificent portico of columns, &c. precedes (6) the entrance into (B) the sacred edifice; in the interior of which (C), was probably the adytum, also the statue of the Deity, with a vestibule (D) behind it. It is evident that many apartments, &c. might easily be constructed around and within this temple, for the accomodation of numerous attendants. Around the whole of this, may be supposed approaches through avenues of trees, and sacred groves; or public roads, canals, &c. The ruins are still visible at Luxxor in Egypt.



N<sup>o</sup> 5



N<sup>o</sup> 6



## P L A T E II.

No. I. It has been thought very probable, that the Israelitish tabernacle in the wilderness resembled in its plan that of the temples of the times, especially those of Egypt; as appears in this figure, where the sacred edifice itself is situated in the center of the inclosure, which is a kind of colonnade.

No. II. May impart an idea of the front of the tabernacle; which seems little different from other temples, except in the temporary nature of its materials.

No. III. Plan of the temple of the Serpent Knuphis in Egypt; a sacred edifice, surrounded by an area; the inclosure not wholly a continued wall, but in part composed of columns.

No. IV. Elevation of the same structure: the pillar in the middle of the *door-way*, was more probably the result of necessity, than of choice, and seems to indicate the great antiquity of this structure.

No. V. Another Egyptian temple; in composing which, the architect has endeavoured to add to its dignity by a very large area, colonnaded, (*a b c d*) having a portico. The temple (*A*) is much like some preceding. Vide No. V. Plate I.

No. VI. Is an idea of the temple of SOLOMON, surrounded by an inclosure; having on each of three sides a magnificent entrance (*ABC*); and on one side two entrances (*DE*). These buildings (as *A*) were fifty cubits long; from them to the porch of the temple was 100 cubits; the porch itself fifty cubits; and the court of the temple (*R*) 100 cubits broad. *S* is the holy place. *T* the most holy place. *x x* chambers of the priests, constructed all round the temple; not adjoining to it, but separated from it by the little interval *u u*.

## P L A T E III.

No. I. Plan of a temple explaining the supposition of the necessity for propping the roof by a row of supports *throughout the middle of the building*, as hinted in the LECTURE and as above, Plate II. No. IV. and partly exemplified in the *door-way* of the temple dedicated to the Serpent Knuphis. No. III. Plate II.

No. II. Frontispiece of a temple slightly ornamented; *i. e.* with two pillars at the door-way, and a pilaster at each corner of the projecting walls, which form the portico: called by the Greeks ANTES.

No. III. Plan of such a temple.

No. IV. Shews further progress in ornaments, the front portico being formed and decorated by an *advanced* row of columns, making in effect a double colonnade: it has also a row of columns at the back front. This kind of temple was called PROSTYLE.

No. V. Plan of such a temple.

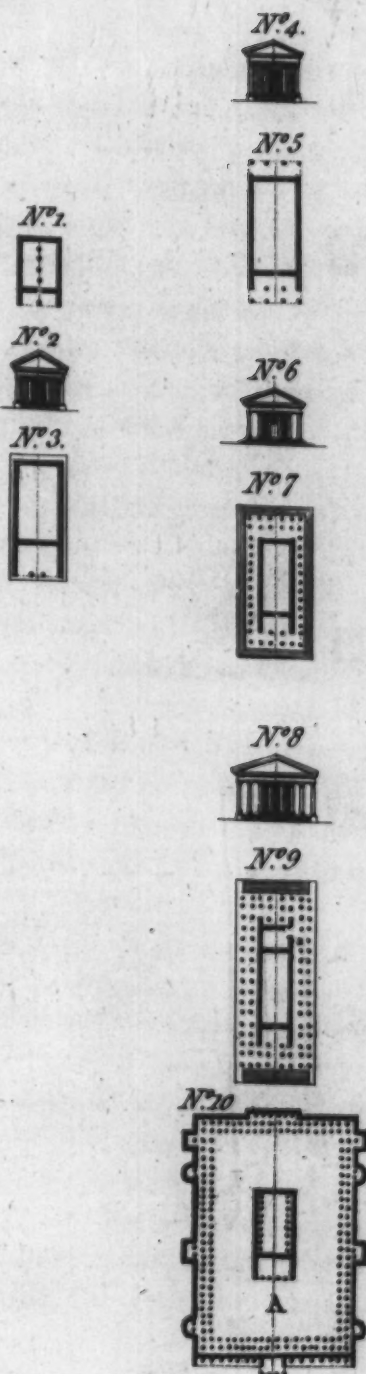
No. VI. Shews the addition of a detached range of columns *all round* the temple; also of several steps, for elevation and additional grandeur. This kind of temple was called PERIPTERAL, in allusion to the kind of wing, which the columns form to the temple.

No. VII. Plan of such a temple.

No. VIII. This temple has *two rows* of columns, in its portico, and all around it; with a flight of many steps in front and behind, and frequently all round. This kind was called DIPTERAL, or *double-winged*.

No. IX. Plan of such a temple.

No. X. A temple in the center of a colonnaded inclosure. The ruins of one like it are thought to exist at Athens: It differs from the Egyptians, in having a colonnade in front of the inclosure; also in the proportion of the temple, &c.



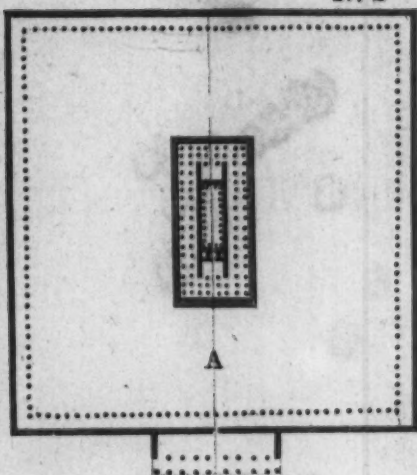




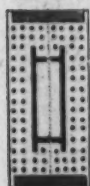
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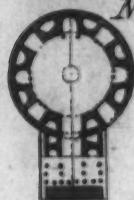
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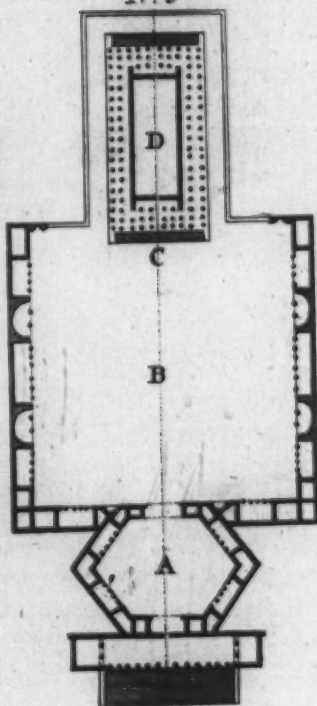
N<sup>o</sup> 4



N<sup>o</sup> 5



N<sup>o</sup> 6



N<sup>o</sup> 7





*Architecture Plate V.*

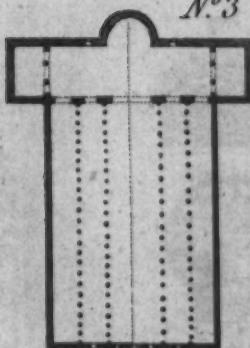
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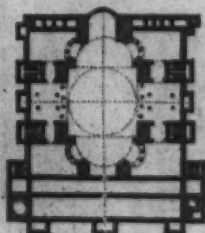
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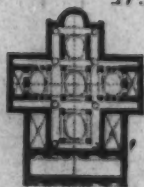
*N<sup>o</sup> 4*



*N<sup>o</sup> 5*



*N<sup>o</sup> 6*



*N<sup>o</sup> 7*



## P L A T E IV.

No. I. TOWER OF THE WINDS at Athens: an octagon temple, of which hereafter.

No. II. Plan of the temple of JUPITER OLYMPIUS at Athens: according to Pausanius, the area was a furlong in length on each side. The temple itself is dipteral; and, according to the general mode of the Greeks, in length more than double its breadth.

No. III. A Roman dipteral temple: in length just double its breadth.

No. IV. Elevation of the PANTHEON at Rome: a circular temple, of which hereafter.

No. V. Plan of the PANTHEON.

No. VI. Plan of a temple at Baalbec: in which we notice, besides an immense flight of steps, a colonnaded portico and vestibule: the first court (A); the second court (B), very large: the portico (C); the body of the temple (D). The temple is DECASTYLE, *i. e.* has ten columns in its front portico.

No. VII. Elevation of its portico

## P L A T E V.

No. I. An idea of the subterranean catacombs, or burial-places; wherein, during persecution, the early Christians are said to have assembled for worship. These were of different forms, as accident or contrivance regulated their construction or excavation. They are found in Rome, Naples, Egypt, &c.

No. II. An ancient church; the plan from PALLADIO.

No. III. Plan of the ancient St. PETER's at Rome.

No. IV. Plan of the famous SANCTA SOPHIA, at Constantinople; now a Turkish mosque.

No. V. Section of SANCTA SOPHIA.

No. VI. Plan of St. MARK's church at Venice.

No. VII. Section of the church of St. MARY of *Flowers* at Florence.

## P L A T E VI.

No. I. Section of the AUGUSTIN's church at Rome.

No. II. Plan of the AUGUSTIN's church.

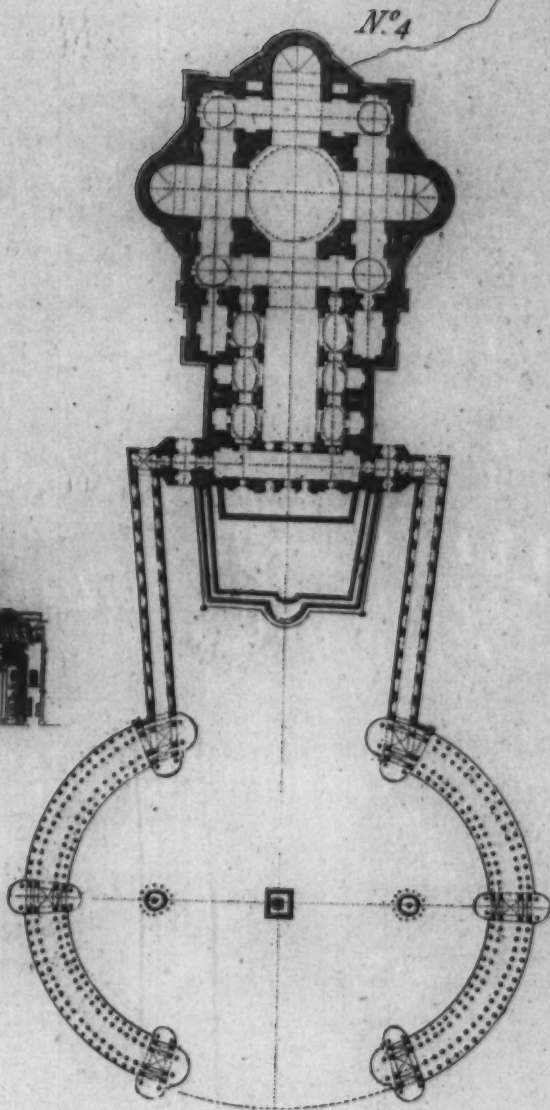
No. III. Section of the present St. PETER's at Rome.

No. IV. Plan of St. PETER's at Rome; with the colonnaded area. &c. which forms the approach to it.

No. V. Exhibits the usual construction of churches in catholic countries; with chapels round the sides. This is the plan of the chapel at VERSAILLES.

These six plates are intended to impart some idea of the progress of architectural decoration and construction; the designs are mostly drawn to the same scale, except the very small ones, (especially the small *elevations*) which are *enlarged*, to render them somewhat more intelligible. We observe, on the whole, that the attempts of succeeding ages at sublimity or magnificence, were constantly directed to surpass their predecessors in the magnitude of their structures, and in the consequence of approaches to them. Whether so much attention bestowed on approaches, has not often injured the effect of the principal building, is doubtful,

N B. *These plates trace the progress of sacred edifices in Egypt, Nos. I. II;—in Greece and Rome, Nos. III. IV;—and of Christian churches, No. V. VI.*







*Architecture. Plate VIII.*

*Nº 2.*



*Nº 2*



*Nº 3.*



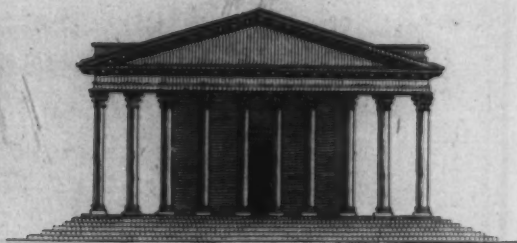
*Nº 4*



*Nº 5*



*Nº 6*



## P L A T E VII.

No. I. Front elevation of a temple of that kind called ANTES ; ornamented only with a pillar on each side the entrance ; and the projecting wall of the temple with a pilaster (the Antes). The order is DORIC.

No. II. The portico *advanced*, decorated with four pillars (correspondent in situation to those of the *Antes*), the rest of the building plain. This kind was called PROSTYLAR, or PROSTYLE. The AMPHI-PROSTYLE had a similar portico in the back-front. The order is IONIC.

No. III. Beside the advanced portico, now containing six columns in front, the roof is projected on both sides of the building, forming a walk between the body of the temple and the colonnade. This kind was called PERIPTERAL. The order is CORINTHIAN.

No. IV. A frontispiece, having eight columns in front ; also two rows of pillars, *advanced* from the body of the temple, on both sides, forming two walks. This kind was called DIPTERAL.

No. V. A PSEUDO-DIPTERAL ; which, seen in front only, has the appearance of a dipteral : but it differs, by the absence of the *interior* row of columns, the space between the body of the temple, and the external row of columns, being vacant ; and making only one walk, of double the usual width.

No. VI. Has ten pillars in front, but only two side walks ; the body of the temple comprising an extent equal to six pillars. This kind was called HYPÆTHRAL. Temples of this magnitude were generally open at the top, forming a kind of cloisters within, and containing many deities.

## P L A T E VIII.

Hitherto we have attended only to temples whose forms were square, or allied to square, as parallelograms, &c. This temple, THE TOWER OF THE WINDS, at Athens, is octagon. This plate also shews the nature of a *Section*, i. e. the *inside* of a building, seen geometrically, as if the front wall was supposed to be absent; also of a *Plan*, i. e. the *foundation* of a building supposed level with the ground. The peculiar construction of this roof, occasioned by the form of the building, is seen in the section, and also in its plan; to which we have added the names of the eight winds, whose figures with their attributes are on the outside of the edifice.

## P L A T E IX.

## CIRCULAR TEMPLES.

No. I. Monument to the honour of LYSICRATES, a victor in the public games, at Athens; called by the modern Greeks (but without authority), the lantern of DEMOSTHENES. This is one of the most elegant little buildings existing; the peculiar richness of the roof, and of the entablature, merits notice. It is supposed, the tripod won by LYSICRATES, stood on the top of the ornament on the roof.

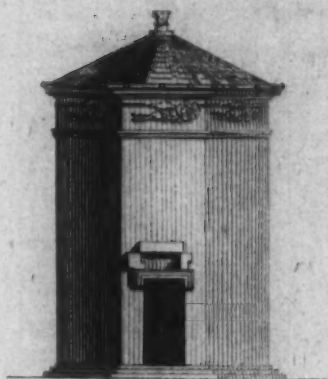
No. II. Section of the monument of LYSICRATES.

No. III. Elevation of a temple at Tivoli, commonly called the SIBYLS temple; but rather dedicated to VESTA.

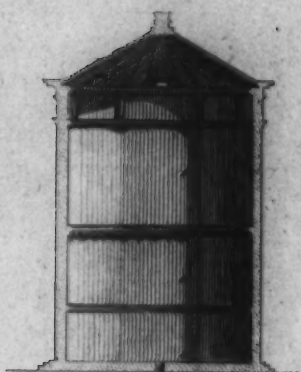
No. IV. A MONOPTERAL temple, i. e. having but one row of pillars, which support the roof, and being open, without any wall to form the body or cell of the temple.

PLATE

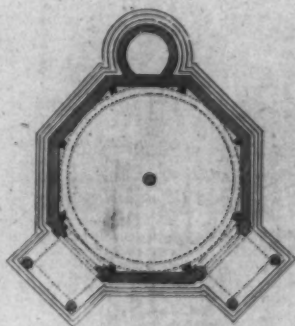
*Elevation*



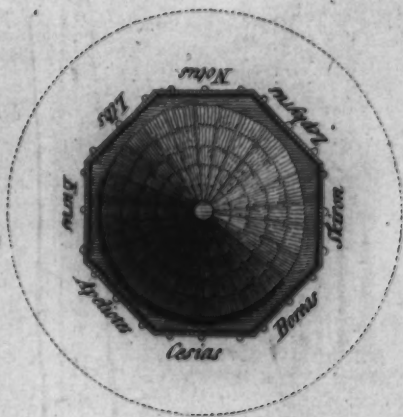
*Section*



*Tower of the Winds  
at Athens.*



*Plan of the Building*

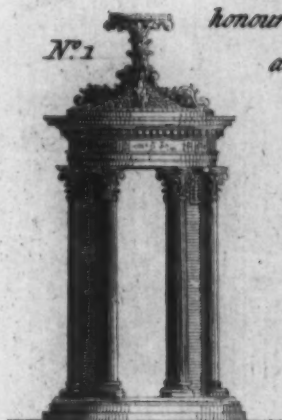


*Plan of the Roof*



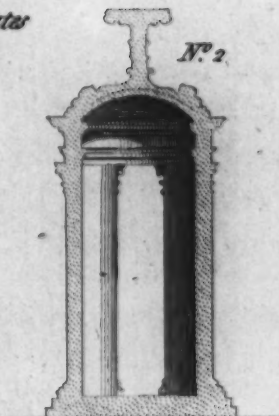
*Monument to the  
honour of Lysicrates  
at Athens.*

*N<sup>o</sup> 1*



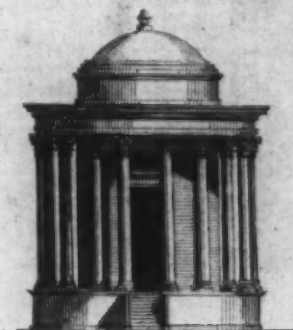
*Elevation*

*N<sup>o</sup> 2*



*Section*

*N<sup>o</sup> 3*



*N<sup>o</sup> 4*



British Museum

British Museum  
Library  
of the  
British Museum



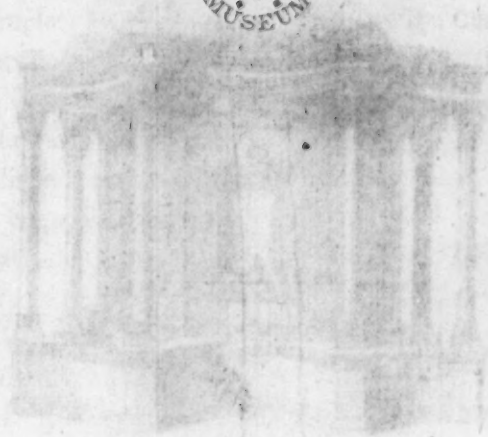
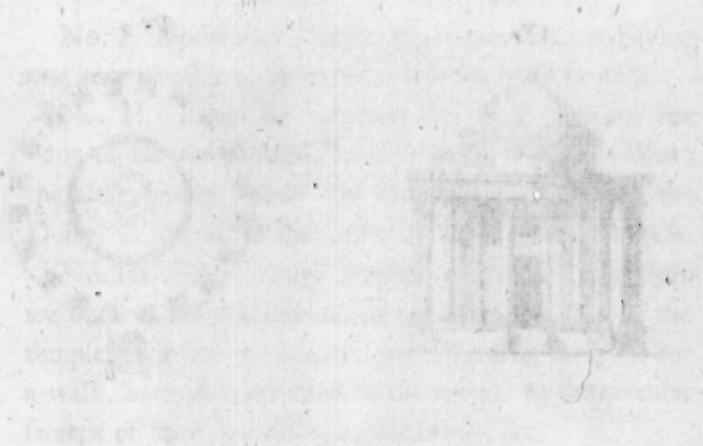
Archway



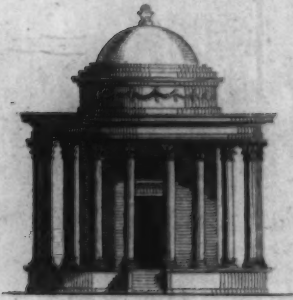
Archway



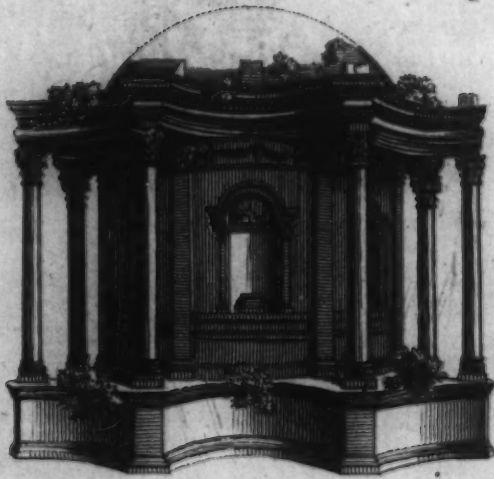
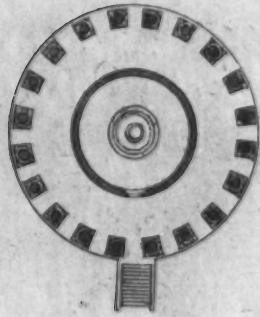
Illustration



*N<sup>o</sup> 1.*



*N<sup>o</sup> 2.*



*A Circular Temple at Baalbec.*

## P L A T E X.

No. I. A circular PERIPTERAL temple, *i. e.* having one row of pillars, advanced from the body or cell.

No. II. Its plan: wherein the walk between the body of the temple and the colonnade, is very evident; the altar (when inside the temple) or statue of the Deity, is placed in the center: but in total darkness.

No. III. The circular temple at Baalbec: wherein we observe the columns advanced from the body of the temple, as in the *peripteral*; but affording no space for a walk, because connected to the temple by the circular sweeps of their pedestals, entablatures, &c.

In these four plates we have attempted to convey to our readers a more distinct idea of the nature and variety of temples, &c. than was possible on the small scale of the preceding plates, where our object was, by comparison with each other, to shew the general progress of this branch of art; and, indeed, as only by *comparison* can distinct ideas of their differences be obtained, we have been solicitous to arrange these in a manner favourable to that intent. We have not thought it necessary to give *plans* of all these buildings, as most (*i. e.* the square) may readily be understood from plans already given; and that given of a round structure requires little variation to render it applicable to all of that form; and is further assisted by the plan of the Pantheon, and some others, introduced on a larger scale, at the close of the following discourse.

End of the Plates belonging to Lecture I.

## LECTURE II.

LADIES and GENTLEMEN,

**T**HE difference between the works of Omnipotence and those of such feeble beings as ourselves, is never more apparent, than when we consider the principles and progress of our attempts at magnificence, or sublimity. What extensive preparations! what unremitted labour! what accumulated toil! what united efforts! are necessary to erect a pile, which shall impress a spectator as somewhat above the common: whereas, with what ease does the Majesty of Heaven will, and it is done, command, and it is accomplished; and this on a scale infinitely beyond the competition or conception of puny mortals! If we seek sublime in terror; vast rocks, awful precipices, immense mountains, strike us into trembling: if in serenity, the celestial expanse is sublimely serene. If we seek an instance capable of both; observe the smooth surface of the liquid plain; the immense pool is motionless: or if, obedient to the wanton zephyrs, gentle undulations creep over the transparent ocean, its languid murmurs die along the shore. Sublimely beautiful!

beautiful ! placid ! benign ! the canal of industrious commerce ! the liberal donor of abundant wealth ! the friendly union of distant nations ! Is this that element, which anon shall rouse its restless fury, in tempestuous billows foaming against the heavens ; shall roll its circling eddies in restless agitation, and discover its profound recesses ! Deep as the grave ! obscure as the shadow of darkness !

The works of Omnipotence are simple principles, applied to a variety, an infinite variety of purposes ; distributed into effects apparently distant from their causes ; into divisions whose origin seems scarcely related to its offspring : not so human productions : these are an assemblage of various smaller articles combined to form one whole ; they are collections from distant quarters, composed, compounded, arranged, and regulated, with much patience, contrivance and ingenuity. To procure them is the province of labour : the sinewy arm must exert its strength to separate or to secure the wanted materials ; and efforts of united force must be well plied, and well directed, to move the cumbrous mass ; but to place them to the best advantage, to improve their forms into symmetry, to decorate them with delicacy and address, is the province of genius ; of genius, happily assisted by knowledge and skill.

The company I have the honour at present to address, will readily excuse the omission of any account of the labours of the quarry, or the toil of the brick-kiln: your attention, LADIES and GENTLEMEN, will be, I hope, more agreeably engaged on that part of architectural science which professes decoration and symmetry.

We attempted to illustrate a former subject (vide LECTURE III. of the first series), by a reference to the principles of this science; in which we considered UNIFORMITY, or SYMMETRY, as appearing with great effect in the labours of the architect; and indeed, the presence or absence of this principle, is among our first observations, whatever instance we inspect. Its absence, is notorious in many Gothic erections, and is a principal cause of that disgust with which we survey them: for every composition of art requires that some part should be more conspicuous than the rest; that some distinguished portion should more immediately impress itself on the mind of the spectator, which he may, without hesitation, fix on at once as the direct object of attention; and in composition of architecture, this is a requisite altogether indispensable: but if all parts of an edifice are alike, we distinguish no principal portion; or if all parts of an edifice are unlike, we

ex-

experience, at least, equal perplexity. Moreover, the striking effect of composition, is not proportionate to its detail, and minutiae, since these require time to be examined, and understood; but proportionate to the quantity of its parts which are calculated to affect the spectator at once:—This may be pretty, and that be delicate; but, unless the aspect of an edifice has previously occasioned expectation of delicacy, and a supposition that it deserves such attention, the finishing will appear frivolous or misplaced.

There is nothing very sublime, I believe, in the firing of a musquet, nor of a dozen, or a score of musquets in succession; but the same quantity of report employed in a large cannon, by its united effect, and instantaneous explosion, produces much *greater* sensations. The sublime of a single voice vociferating *buzza!* is very moderate; whereas in the roaring of a multitude, is something grand; but if this roaring be regulated by happy modulation, it becomes a chorus, and is unspeakably improved in effective grandeur, principally by symmetrical arrangement. So in architectural composition, that will be most successful which brings the greatest quantity *to bear* on a spectator *at once*. Let me not be misunderstood; quantity, *i. e.* extent, is not my meaning; since the capacity and intelligence of a spectator to survey them, do not increase

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with

with the increased dimensions of a fabric ; but I mean that happy arrangement, which, by symmetry and distribution, enables him to comprehend the composition, and its beauties, with the readiness of perception.

Thus, at a blow are cut off the intricate multiplicity of projecting corners, closets, staircases, towers, and turrets, which abound in many structures : with all labyrinthine windings, and vermiculated decorations, which rather speckle than adorn the external of buildings : and, by reducing their ornaments to facile comprehension, we forbid much useless labour which has often been injudiciously, perhaps injuriously, lavished. I think also, that herein appears the superiority of Grecian architecture over that of other nations : ornaments are ornaments ; their effect to produce diversity ; those of one shape may please as well as those of another ; but in the larger and more important principles of art, an error is more serious, and less retrievable. We place, therefore, a symmetrical distribution, which shall distinctly express the design of the edifice, and indicate its noblest parts, as a *sine qua non* in architectural composition.

But hereby do we exclude VARIETY ? By no means ; we merely forbid licentiousness ; variety run mad. We commend a diversity of forms, provided those forms be regular ; and  
exclude

exclude no variation which tends not to weaken the general effect : In fact, variety is equally necessary as symmetry ; and equally necessary as either, is that propriety and FITNESS, which regulates every exertion of art.

No proof is required, that, according to the proposed use of a building, it may vary in parts and dimensions. A parlour requires not the magnitude of a cathedral : nor am I of WILLIAM RUFUS's opinion, that Westminster-Hall is fit only for a bed-chamber. Propriety not only need never be separated from elegance, or magnificence ; but magnificence or elegance are offensive unless accompanied by propriety.

In enquiring, therefore, the most suitable proportions for an edifice, we must previously understand its destination ; for according to its use, must be its magnitude ; and according to its magnitude, must be its proportions. Various instances prove the power attributed to this principle by the architects of antiquity : where a colossal building, for instance, required extraordinary altitude, they proportioned the members of the orders which composed it, not precisely and exactly as they would have done, had each been separate ; but allowing for the effect of Perspective, and its influence in diminishing proportions, they determined their parts accordingly, adapting them to those stations from whence they were most likely to be surveyed.

surveyed. Such variations of the parts of buildings imply variations in general dimensions to answer particular purposes.

Moreover, the destination of an edifice regulates, beside its proportions, all its decorations. I readily grant, that we may worship the Deity with equal sincerity, and with equal acceptance, beneath a roof of thatch, as beneath a splendid dome: Yet, I cannot say, therefore, I would recommend a cottage for a cathedral; on the contrary, where multitudes assemble to worship, I would wish to render their worship commodious. Together with meanness, this concession equally prohibits whatever is gaudy, or glaring, since these contribute (often greatly) to distract attention. In this respect, comparison between the rival churches of St. PETER and St. PAUL, would be greatly in favour of the latter.

I much mistake, if splendid decorations are analogous to the design of a house of prayer, which is the simplest and most direct idea of an edifice for worship. Are they not rather likely to excite that admiration of the artist's abilities, which is inconsistent with the intense humility of devotional supplication? Imagine yourselves, LADIES and GENTLEMEN, entering a superb edifice, on either hand fluted columns, and pilasters, of exquisite workmanship, supporting highly ornamented  
arcades,

arcades, surrounded by statues of great merit, and by pictures of most sublime composition : advance further into the building ; observe the wreathed pillars, and the angelic figures ; look up to the dome, look round to the aisles, look forward to the altar ; the whole is enriched with scrolls, shells, foliage, and festoons ; with every device of sculpture and painting, every ornament of human art. Is there nothing in all this to bewilder attention, and to dissipate reflection, to amuse, rather than to improve the worshipper ? — But St. PAUL'S has no such profusion of magnificence ; the structure is indeed grand, but also simple in its parts, and plain in its ornaments : no pictures, and little sculpture ; nor do I wish to see its sculpture much augmented, except perhaps, by monumental erections to those great men, who should deserve of their country to have their memory so honourably transmitted to posterity ; and these might be placed in the circumference beneath the dome to great advantage.

I confess, I think the humbler parish church more happily adapted to its purposes than the gaudy St. PETER'S ; but I would not confound a parish church with the dwellings of the parochial inhabitants : It requires distinction, and variety in its ornament, as in its construction ;

nor am I a Puritan enough to suppose, that pillars at the porch, or pilasters within, would hinder the fervency or acceptance of devotion.

We look elsewhere then for decoration and magnificence : where the senate of a great nation, the representatives of a powerful and opulent people, meet to regulate their power and opulence ; where Royalty erects his throne, and the seat of government is apparent ; where foreign visitants are received with due distinction, whatever be their rank ; and where, if ever, pride, national pride is laudable, there introduce the rich entablature, the ornamented moulding, the polished shaft ; there exhibit the flowing wreath, and the gracefully-pendant festoon : but beware even there, that dignity is not lost in decoration, nor genuine elegance enthralled by lavish profusion.

Or, if the nobles of the land wish to erect mansions suitable to their estates, we commend the intention ; their patronage will encourage art, in return, art will supply conveniences not otherwise to be procured, and elegancies not otherwise to be enjoyed ; art will furnish personal accommodations adapted to their conspicuous situations, and splendid distinctions correspondent to their exalted dignity. By what powers,

powers, or means, art will succeed in this attempt, I proceed now briefly to notice.

There are certain principles in which every erection intended for habitation must of necessity agree ; such as, that it should be a defence from the vicissitudes of the Seasons ; that it should be a commodious receptacle for property ; that it should permit the necessary avocations of nature, and contribute to safety and satisfaction as well by night as by day, and so on. It is true, these are a part, and a very important part of architectural study, but your own observation, LADIES and GENTLEMEN, will readily inform you, that the principle is extremely extensive, and its ramifications endless. It were not easy to notice such variety, much less to render it improving, or entertaining : nor is it my present design, to enter into a detail of carpentry, and perplex you with beams, timbers, girders, joists, and rafters ; these we leave to whom they may professionally concern, and turn our attention to those compositions which boast peculiar elegance.

In a former discourse we remarked, that to increase the magnificence of their temples, the ancient architects augmented the number of their columns ; and, that whenever elegance was necessary, recourse was had to columns :

What is there in columns which entitles them to this distinction? or are all equally elegant?

There seems, I think, little reason to doubt that trees were the first supports to buildings of considerable size; and were most probably inserted into the walls, to sustain either an upper story, or beams of considerable weight, on which the roof rested. The strength which they contributed, when by attentive genius rendered regular, brought them into use; by progressive improvements, they increased in importance and ornament.

There remain in some early edifices, very remarkable indications, that ancient architects, in erecting stone buildings, did little more than substitute one material for another; they have imitated very closely the courses and appearances of those beams of wood, which were necessary to be laid from part to part, for additional support. It is true, they ornamented these marbles, but still they retain the appearance we have mentioned; and had we now extant the original attempts at this substitution, probably, it might be yet more explicit. \* This is very apparent in certain parts of the orders: let us therefore turn our attention to the orders; and to this circumstance among others belonging to them.

The DORIC order of columns is considered, I apprehend, justly, as the most ancient. The earliest Doric specimens remaining, usually consist of the following parts : (1) The shaft of the column, which goes strait into the ground; or which rests on a step, without ornament, or moulding at the bottom, to form a base ; and this absence of the base occurs, notwithstanding the shaft may be decorated with flutings, which indicates a progress in ornament. On the upper part of the shaft is (2) the capital; the form of whose members in early instances seems to convey an idea of pressure by supporting considerable weight ; over the capital, is (3) the architrave, and (4) the frieze, which correspond exactly to so many pieces of timber, laid on each other, and from column to column. (5) The cornice, by its projection, seems intended to protect the under parts from the injuries of the weather ; and, very probably, was originally so designed.

Some have said that the Doric column was proportioned to the form of a well-shaped man, as the Ionic was imitative of a delicate woman. It might be so ; but I am not without suspicion, that this resemblance, and its application, was discovered after the invention of these orders :

ders : it seems to me an ingenious after-thought grafted upon them, arising from observing their different decorations, as well as proportions. For the manly Doric not suiting so well the lighter kind of edifices, it was natural to think of lengthening the shaft, or tapering its diameter, which in effect is the same : nor was it difficult to enrich, or to elevate the entablature.

The volute, which forms a very important part of the capital of the IONIC column, bears some resemblance to a ram's horn, which may be supposed hung on a pillar (we know they were placed around altars); as the trygliphs of the Doric order are considered as originating from the sacred lyre ; and the sheeps heads, &c. which adorn the Metopes, from those parts of animals slain for sacrifice. It is, indeed, likely that most ornamental appendages of the orders originated from some accidental occurrence, or ceremonial custom : thus the torus of the base is thought to have been suggested by the passage of cords or bands, with which the pillar might be kept steady ; or of those cords which, having drawn up a canopy, were wound around the pillar to secure them. If, indeed, the priests (who were usually poets also) hung their  
lyres

lyres on the walls of their temples, they might suggest the idea of the trygliph; and when once such an ornament is adopted, what prevents other implements from being esteemed ornamental; and also appropriate; as shields, &c. to the God of War, and foliages of the various sacred trees, to their respective divinities, around whose temples they grew.

Those persons who have doubted whether architecture was capable of expression, seem never thoroughly to have considered the distinction of the various orders, or their progress. I think it evident, that in early times sacred edifices were decorated with the Doric order; and thereby it seems not unlikely, that an idea of sanctity became connected with it. It might be thought, perhaps, too serious for places of pleasure and diversion; and a lighter, more airy, and ornamented style, might be sought for such gay erections.

To characterize the orders, I should say, the Doric is manly and firm; the Ionic is beautiful and delicate; the Corinthian magnificent: but the magnificence of the Corinthian was perfected long after the others had been employed.

Concerning the capital of this order, is related one of those accidental instances of good fortune, which usually occur only to those who  
by

by their merit deserve such favours, and are qualified to improve them. With that kind of regard which we shew to the memory of those we love, a nurse of Corinth, whose child was dead, brought out her playthings, and placed them in a basket before her tomb; the basket happened to stand on a root of Acanthus, which springing up around it, formed by its leaves a decoration that might have been passed unnoticed by the eye of ignorance: but the effect of knowledge is, to instigate the mind, and to direct its researches. Whatever is beautiful, whether uncommon, or frequent, is an object of attention to the well-informed, and this history is one proof of it. The sculptor CALLIMACHUS passing by the tomb, was pleased with the elegant appearance of the basket, thus decorated by the luxuriant Acanthus; and having made a design from it, he afterwards used this new and beautiful ornament to embellish the capitals of columns. Correspondent to the gaiety of this decoration, the proportions of the CORINTHIAN order are taller, and more superb, than those of its predecessors.

These three orders are, in fact, all that a just taste would think necessary, since one or other of them suits almost any kind of structure; but as it is usual to reckon the orders as  
five,

five, I shall introduce a few words on the TUSCAN, and COMPOSITE.

The TUSCAN is, in principles, nearly allied to the Doric, and is, very probably, either the Doric order injured by want of skill in those who employed it, or, perhaps, a transcript or imitation of it in some very early stage, which, being carried into a remote country, never arrived at complete maturity or superior value.

The COMPOSITE was the latest of all the orders, and chiefly used in Rome. It unites parts of the Ionic and Corinthian, which, however it may succeed in some cases, in others spoils both.

It is evident, if we trace the progress of columnar proportion, that it continued increasing till the architect was convinced he had sufficiently tapered or lengthened his column: and perhaps, it is not easy to determine, whether was deserving of most applause, that judgment, which by perpetual improvements advanced to a certain point, or that, which having reached this point, was convinced of the impropriety of passing beyond it, and forbore to force art beyond her abilities.

The proportional height of many very ancient, perhaps the most ancient, Doric columns remaining, is but four or five of their diameters (next the base); by degrees, however, they were

proportioned to six, and afterwards to seven, or eight, including bases and capitals, which latter (capitals) are but small in structures of remote antiquity. As to pedestals, it is clear, as they had no bases, they could have no pedestals.

The Ionic column being elevated to nine diameters, including the capital, acquired a lightness which the Doric did not possess; the members of its entablature also were proportionally elevated, to correspond with the delicacy of the column: and now the column terminated in a base, and pedestals were introduced, as imparting greater height to the order, without disturbing its parts.

Ten diameters were given to the Corinthian column; and its entablature was varied of course. Beyond this, we have no rules for proportionate, or regular architecture; and we find, that (as in some Gothic buildings) where pillars of more slender dimensions are adopted, they must be so placed that several together form one column; a single pillar being weak and insufficient.

The effect of an order is very much determined by the projection of its parts (which preserve a certain ratio to their heights), and depends greatly on the shadows such parts will cast, when in their proper places in the building.

ing. Therefore, it sometimes happens, that where bold proportions are given to the members of an inferior order, they acquire greater appearance of dignity, and produce a more forcible effect than richer composition, or more delicate workmanship.

Besides being susceptible of the highest decoration, the orders impart apparent strength to a building ; they contribute indicatory support and stability ; qualities of much importance in architecture. Now as it is contrary to every idea of probability, that the weaker should support the stronger, the elegant support the robust, or the delicate the sturdy ; therefore, in determining the situations of orders over each other, we must advert to their respective characteristics.

According to this view of the subject, the Tuscan order is fit only for places little exposed, where gross strength forms the principal recommendation ; and, being the stoutest of the orders, is used at the bottom of buildings, and in lowermost situations.

More noble than the Tuscan, though not so elegant as the Ionic, the Doric order is placed between them ; and, like the direction of wise counsel, regulates the whole composition,

though unnoticed by the perception of ignorance.

It is clearly proper that columns, when above others, should stand immediately over the centre of those beneath them, and not be removed on either side, which would be absurd. Still more absurd would it be to place three columns as supports to four, and so on. It being, then, necessary that the same perpendicular should pass centrally through the superior and inferior columns, and the distance from column to column in the Doric order being greatly regulated by the Metopes (which must be square), and by the Trygliphs (which are half a diameter of the column, and which must be placed direct over the column), it follows, that according to the Metopes and Trygliphs, must be situated the Doric column; and correspondent to the Doric, must be placed the Ionic over it, and the Corinthian upon the Ionic. For these orders being lighter, as their elevation increases, are respectively unfit to support those beneath them; and they are regulated, not only in situation, but also in proportion, by the proportions of those below them. Observe likewise, that there is a natural alliance between orders whose proportions are most nearly

nearly similar. To employ the Tuscan in supporting the Corinthian, though very well able for such employment, is to sustain a light weight by a prop adapted to a heavy load ; consequently, it is misplaced ; not to mention the too great opposition between the magnificent richness of one, and the rustic plainness of the other: but when the Corinthian order is supported by the Ionic, the affinity is pleasing ; or when Doric sustain Ionic columns, though apparently well calculated for this purpose, as being strong, yet their strength seems well employed, not wasted.

As the relative proportions of the parts of the orders are not to be explained without figures, I refer you, LADIES and GENTLEMEN, to the examples. I shall venture, however, as no great digression from the characters of the orders, to censure those breaches of distinction, and appropriation of them, which have sometimes been fashionable, through the influence of masters whose abilities might have been better employed. It seems to me idle to say, “ I wanted embellishment in that instance, and therefore have decorated the Doric pillars and entablature equal to the Corinthian : I have given it a capital of leaves, roses in its abacus, and have embellished an ovolo in its cornice with eggs and darts.” This confusion, I say, ought to be

4

avoided ;

avoided; since, if all this richness was necessary, why not use the Corinthian, or the Ionic, at once? Were these orders unknown, necessary ornament might be a pardonable excuse; but while character is allowed to be of importance, it should be adhered to: and if urged by necessity to deviate from it, which, I am persuaded, is rarely fact, the deviation should be very dexterously rendered as little observable as may be.

Propriety is, I think, the director on all occasions; and very far am I from supposing, that general regulations are perpetually and universally to be enforced. I would not ornament a mile-stone with a capital of Acanthus, and taper it to such and such elegance, and to so many diameters in height; it would be misemployed: nor do I think the worse of those great architects, who adopted the Tuscan, though the least elegant order, for the pillars which perpetuate the memory of TRAJAN and AURELIAN; because, these pillars being immense masses, standing alone, and being decorated with historical sculptures, are out of the usual applications of art. Moreover, we have but to consider the effect of perspective on the lengthened shaft of a taller pillar, to perceive that the uppermost ranges of figures in such erections, must have been, by their distance and projection, if not nearly invisible, certainly very greatly confused and perplexed:

and

and I doubt not, that had Sir CHRISTOPHER WREN designed to erect, as a monument of the fire of London, a pillar whose shaft was to have been historically ornamented, he would have preferred for that reason the Tuscan order to the Doric.

The variety of minor ornaments introduced in architecture is too extensive to be now repeated; I might almost call it infinite: character and appropriation are all I shall insist on as necessary and indeed indispensable in this article. For who would approve of ornamenting the residence of a general officer with lyres and myrtle foliage; or a lady's bedchamber with trophies of the stern God of War? But when Blenheim is built to commemorate a victory, let not trophies be absent there; or, when a senate-house is erected, forget not the symbol of eloquence (a Caduceus), or the Civic crown.

There has been a debate among architects, whether human figures were, or were not, proper to be introduced as ornamental terminations of the external upper parts of structures. It is said on one side, that figures are the most elegant terminations, that they may be symbolical also, and that all the world knows they are stone: which reasons are urged in answer to whose who remark, that they are placed where nobody would choose to stand, or indeed could stand long  
with

with safety; that they are exposed to all weathers, which neither Gods nor Goddeses, if they represent such subjects, nor human beings, if they personate mere mortals, would be able to endure; that other symbols, if symbols are necessary, might be equally expressive; and that, beside what elegance may be found in other kinds of terminations to supply their absence, true elegance is inconsistent with absurdity. These reasons are so strong, in my opinion, that I survey without pleasure unhappy figures, condemned to situations whereat humanity shudders. Very rarely, indeed, may similar ideas be placed to advantage; if we permit the lion, as supporter to the arms of his Grace the Duke of Northumberland, to embellish Northumberland House, it does not follow that the lion and unicorn on the steeple of St. George's church Bloomsbury should escape censure, or that the King himself on the steeple point should abide year after year unpitied.

Nearly allied to this article is the order of CARYATIDES, which is a substitution of figures, generally female (for when male figures are used, it is termed PERSIAN), instead of pillars. Its origin is thus related: When the Persians invaded Greece, the town of Caryata, instead of combining with other Grecian cities in defence of their common liberties,

liberties, made a truce with the invaders, and weakened the hands of their countrymen. In revenge of this behaviour, after the defeat of the Persians, the Greeks attacked and took the town of Caryata; condemned the inhabitants to slavery, and dispersed them among the cities of Greece: also, that they might become instances of greater severity, they forbade them to wear any other than their own dresses, by which they were always distinguished wherever they went. To perpetuate the disgrace of this unhappy town, the architects and sculptors of those times composed an order of figures, to which they gave the name of Caryatides; and these they represented in slavish and disgraceful attitudes.

It is not necessary for us to take up these ideas on the Caryatic order; but whether it be applicable in present circumstances, is all we have occasion to consider. I think it, for reasons already alleged, not eligible to external decoration: the order, indeed, is now chiefly composed of allegorical figures, such as virtues, &c. but methinks, exposure of the virtues to every injury on the outside of a building, might be supposed by a splenetic observer to indicate their little influence on the master within. At least, such reflections have arisen from an instance not al-

together dissimilar ; I mean the equestrian statue of LOUIS XV. in the Place *Louis quinze* at Paris, by BOUCHARDON : the pedestal is supported by the four cardinal virtues, which suggested a pasquinade to this effect :

What a comical fellow is this BOUCHARDON !  
 His work we complain is vexatiously wrong ;  
 His VICE here on horseback he ventures to seat,  
 While the cardinal VIRTUES are under his feet.

Another reason, which I think insuperable, wherefore figures should not be used in external decoration of buildings, is, that be their dimensions what they may, the eye will never judge them to be so much larger than life, as they really are ; therefore, a spectator being unable to *augment* such figures proportionately to the magnitude of the building, will *diminish* the building in a proportion correspondent to his conception of such figures. It easily appears from hence, how much a structure may lose of its just importance by this diminution ; and perhaps we might with little hesitation instance it in that particular of St. PETER'S at Rome, which I formerly noticed (LECTURE I.) : for, if the perspective effect deceives those who examine the great altar, inducing them to suppose the figures only half their actual size ; no wonder a similar error should estimate the whole length  
 of

of this building much below the truth, since it is throughout crowded with abundant objects which may contribute to such deception. The fact is universally admitted, that, at their first survey of this church, strangers always estimate its dimensions less than they find them on better acquaintance with its various parts. I know this has been accounted for by supposing its arcades are too high; perhaps, however, not to the prejudice of the principle just mentioned.

After having disapproved too abundant profusion of ornament on the outside of buildings, I shall hint that, in my opinion, ornament may be very suitably employed in those apartments which in most, I might say in all, capacious structures are appropriated to festivity and hilarity: here let the ornaments also be festive and hilarious: cheerful society and polished manners may justly substitute for gloomy decoration and heavy taste (if taste and decoration it may be called); ornaments adapted to enliven and diversify the scene, to attract and delight the eye. For though a visitant would be awkwardly employed in examining the exterior ornaments of a structure, while expected by its owner, and perhaps in sight; yet in the drawing-room, or the cabinet, what forbids his enjoying the delicacy of an Artist's workmanship, the finishing and propriety

of embellishment, or the striking effect of composition? Here also the lighter orders apply, and their magnificence is better within view: here too, if symbols are introduced, a spectator may have that time to observe their natures and applications which he would scarce bestow on the outside of the edifice.

There will always be diversity of opinions on the effects of many parts, especially the ornamental parts, of every composition (otherwise taste would constantly be alike, and variety be excluded); yet the primary and settled ideas of sciences which have been the constant study of mankind, are not now to be quitted, or exchanged. The innumerable occasions and circumstances which arise, and which require particular adaptation, afford ample opportunity for the exertions of architectural skill; and where, by happy contrivance, or foresight, or by judicious remedy of defects and impediments (from whatever cause arising), an artist overcomes difficulties, or improves capabilities, let him have his just praise. Natural genius is not confined to any spot, or to any people; and, in my mind, the constructor of Pont-y-prid bridge, in Wales, though a mere mason, or a mere country carpenter, may vie, as a man of genius, with the author of the Rialto.

You

You are well aware, LADIES and GENTLEMEN, that this science is of great extent ; it has produced many huge folios ; and may justly claim the character of “ making many books, “ to which there is no end.” It will not, therefore, be expected from me (however desirous of imparting information), that I should be able to comprize in the limits of an evening’s discourse, the whole of a study so multifarious and extensive.

But notwithstanding our attention to those principles of architectural decoration, on which this science may be said to value itself, has been somewhat lengthened, I would not entirely omit in this lecture a slight notice of those humble, but not less happy structures, which decline pomp and parade ; which, while they contribute to the enjoyments of human life, raise little emotion in the spectator, unless of complacent reflection on that benevolence, philanthropy, and decorum, which he knows inhabit them. We have many such in our happy isle ; where every comfort is enjoyed, and whatever is really valuable abounds ; where genuine ornament is liberally acquired, and where human life rolls on with pleasure and delight.

Who would not wish in such an habitation to pass his days ! Not indeed that the habitation  
insures

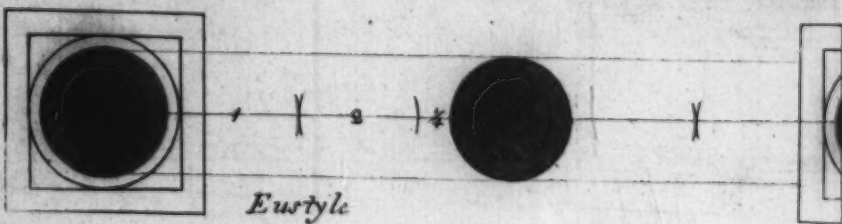
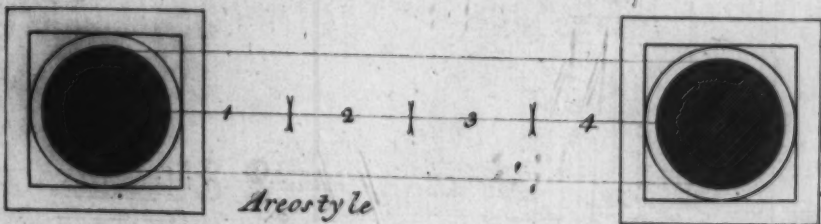
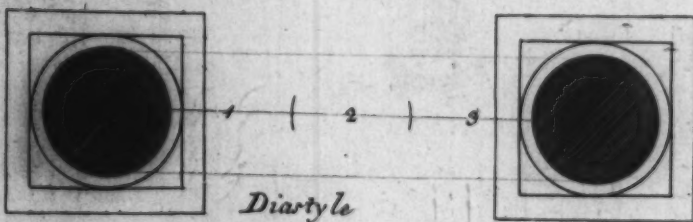
insures this felicity, but certainly it may promote it. If, therefore, any of my auditors should ever have occasion to erect such a fabric, let them first pay attention to the situation of their proposed dwelling: not in a bottom, where an amphitheatre of surrounding hills forbids every opening prospect; where rushing waters induce melancholy, and the winter's torrent sweeps away all before it; where rushes are the only ornament of the mire, and vegetation is suffocated by mud: not on a steep hill, whose rapid declivities are of laborious ascent; on which the rude blasts of the bleak north wind beat full, and whose roar occupies the melancholy attention of the cold-confined inhabitant. But, where the easy declivity affords an enlivening view, exciting exercise repeatedly to enjoy it, and amply repays the gentle exertion; where the promenade may be diversified by variety, and prolonged by novelty; there be your dwelling situated; especially if vegetation flourishes, and the waters are sweet and plentiful.

Shall I describe my idea of such a situation? The dwelling should be, without, simple and plain; too limited perhaps for much variety, but decidedly uniform and symmetrical; void of external garnishing and frippery, but not of adaptation, decorum, or perhaps of taste: the  
central

central door-way, ornamented by an advance of pillars (modest Doric, why not graced with a basso relievo?) should conduct to the entry adorned with pilasters; but the order should change in the dining-room and the parlour: where my friends meet, may they meet every ornament in my power! Ionic pilasters may well embellish the garden front, raised by a plinth above the gravel walk. I own I love a garden: suffer me then to enjoy close around in sight “flowers of all hue, and every fragrant scent:” a little further, let evergreens compensate in winter for the room they occupy in summer: if, on either hand, clumps of lofty trees, or plantations of shady groves, adorn the walks, they complete the scene, without interrupting the prospect. Far hence be fastuous pomp, and indecorous images, Dryad or Fawn: we substitute historic records, the noble of the human race, or familiar allegories, which veil, without obscuring instruction. What enjoyments are distant, we must enjoy at a distance; nor wish the river diverted from its channel, to conduct it through our garden canal: no, be that a public benefit; it shall add by its traffic and life to the pleasure of our prospect, or perfect the view by its stillness and resplendence: the distant hills and the blue mountains, far as  
the

the eye can reach, shall submit to our inspection, and their cumbrous masses close the extended survey. Health and serenity, peace and tranquillity, shall here establish their residence; here life shall glide on—imperceptibly, but not uncultivated nor unimproved: be it the concern of every individual to remember and exert our prerogative as rational and immortal beings, whose views extend beyond the compass of the globe itself, and who expect above the skies, not merely habitations, but MANSIONS of felicity!

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## OBSERVATIONS

*On the Plates belonging to LECTURE II.*

## ARCHITECTURE.

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 PLATE XI.

**S**HEWS the various distances of INTERCOLUMNIATIONS, and their names, as given by the ancients: These examples shew at the same time the manner of representing plans of columns, with their bases and pedestals. The general effects of these various distances may easily be imagined.

**PYCNOSTYLE** intercolumniations are distant from column to column one diameter and a half of the column measured at bottom. This is the nearest approach of columns to each other, except when they are coupled; in which case, the bases of the two columns may almost touch each other.

**SYSTYLE** intercolumniations have the space between the columns two diameters.

**DIASTYLE** intercolumniations have three diameters.

**AREOSTYLE** intercolumniations have four diameters.

**EUSTYLE** intercolumniations have two diameters and a quarter. This disposition was by the ancients reckoned

the most perfect; as a happy medium between the thronged Pycnostyle and the scattered Areostyle; and as permitting also sufficient passage between the pillars.

When columns are coupled, as the increase of strength is proportionally augmented, the couples may be separated by a wider interval than single columns, without injuring the general effect. But an interval of four diameters is usually thought quite sufficient.

## PLATE XII.

Shews the proportions of the orders to each other on the same scale; the elevation and tapering of the shaft, and the advance of richness and ornament, are apparent.

### GENERAL PRINCIPLES

#### IN DRAWING THE ORDERS.

The orders are generally measured by the diameter of their column at the bottom of its shaft: this diameter is usually divided into sixty minutes; and by these measures the whole is adjusted.

The DORIC column is in height 8 diameters

The IONIC - - - 9

The CORINTHIAN - - 10

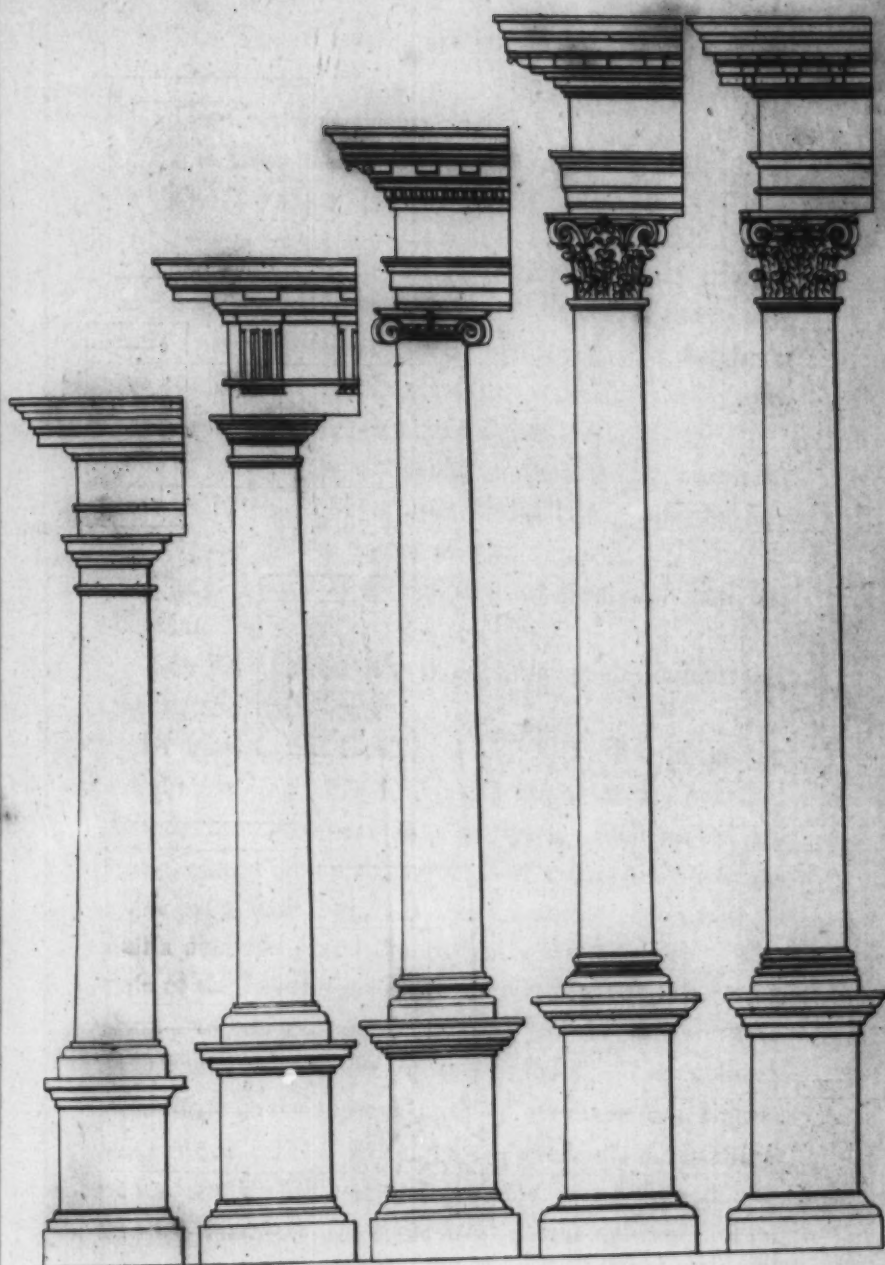
The COMPOSITE - - 10

The TUSCAN - - - 7

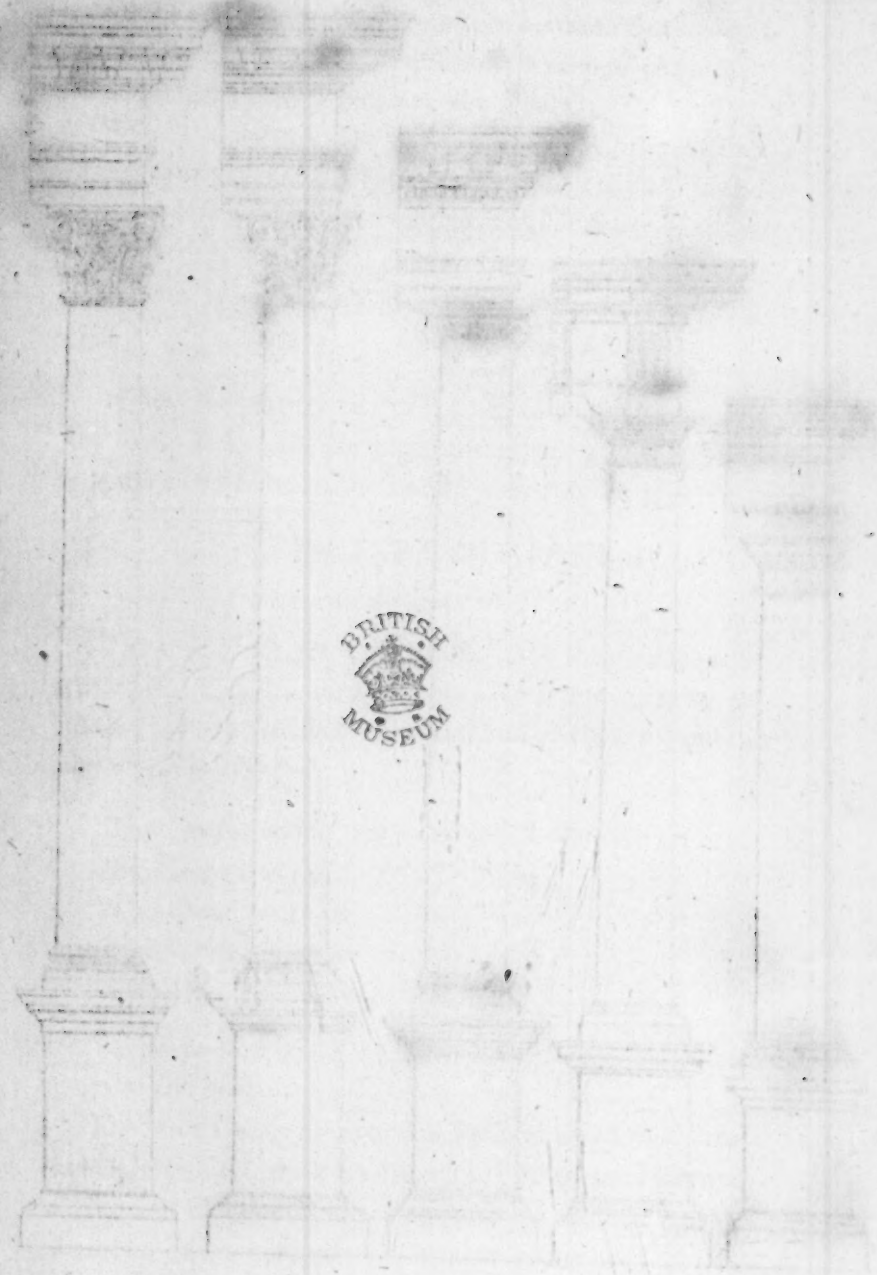
The proportion of the columns being fixed, the other parts of the orders are adjusted to them.

The ENTABLATURES of the Tuscan, and Doric, are in height one-fourth of the columns: of the Ionic, Corinthian, and Composite orders, one-fifth. Which by the diameter of the columns is in this proportion:

The



TUSCAN. DORIC. IONIC. CORINTHIAN. COMPOSITE.



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The DORIC entablature is in height	2 diameters
The IONIC        -        -        -        -	$1\frac{4}{5}$
The CORINTHIAN        -        -	2
The COMPOSITE        -        -	2
The TUSCAN        -	$1\frac{3}{4}$

The PEDESTAL is comparatively a modern addition to the orders, and is that on which the base of the column rests: its general height is one-fourth the height of the column and entablature taken together. It is sometimes made lower, but never higher.

The pedestal is divided into the *base* (at bottom); the *die*, or square part (in the middle); and the *sur-base*, or *cap* (at the higher part).

The COLUMN is divided into the Base, the Shaft, the Capital.

The ENTABLATURE is divided into the Architrave, the Frieze, the Cornice.

In drawing the DORIC order, erect a line of the just height required; one-fifth is the height of the pedestal. Divide the remainder into five parts; four to the column, one to the entablature. The column divided into eight parts, one-eighth is the diameter. The base is half a diameter; and the capital half a diameter. The base of the column projects on each side one-third of a semi-diameter: Exactly of equal projection to the base (constantly) is the die of the pedestal. The column diminishes at the top one-sixth of its diameter; beginning at one-third of its height, and gradually diminishing as it ascends. The capital projects one-fourth of the smallest diameter (*i. e.* at top) of the column. The

enta-

entablature is divided in eight parts ; two to the architrave ; three to the frieze, and three to the cornice. The architrave projects one-sixth of its height ; the cornice projects one-half of the height of the whole entablature.

*N. B. The projections of the members of the orders are always reckoned from a line supposed to be erected in the centre of the column, unless notice be given to the contrary.*

In drawing the IONIC order, divide the original line into five parts ; one-fifth is the pedestal : the remainder divided into six parts, one-sixth is the height of the entablature. The column divided into nine parts, one-ninth is the diameter ; the base and capital are each one-half diameter in height. The column diminishes one-sixth ; the capital projects one-half of the semi-diameter of the column ; the projection of the base is one-third of the semi-diameter. The entablature is divided into five parts ; one part and half to the architrave ; the same to the frieze, and two parts to the cornice. The architrave projects one-fourth of its height ; the cornice projects equal to its height.

In drawing the CORINTHIAN order, divide the original height into five parts ; one of which is the pedestal. Divide the remainder into six parts ; five to the column, one to the entablature. The column divided into ten parts, one is the diameter ; the height of the capital is one diameter and a quarter. The other dimensions agree with the Ionic order.

*N. B. The Composite is similar to the Corinthian in its proportions.*

In drawing the TUSCAN order, divide the original height into five parts ; one is the pedestal : Divide the remainder

remainder into five parts; four to the column, one to the entablature: the base and capital are each one semi-diameter. The ENTABLATURE divides into seven parts: two to the Architrave, two to the Frieze, three to the Cornice. The COLUMN diminishes one-fifth of its diameter; the Capital projects one-fourth of the smallest semi-diameter; the Architrave projects one-sixth of its height; the height and projection of the Cornice are equal.

PEDESTALS in general follow the proportion of their order; but are varied according to circumstances. The pedestal of the Tuscan order is divided into four parts; one is the height of the plinth, one half is the height of the sur-base; one-third is the height of the lower base. The projection of the base is equal to its height; and the projection of the upper base, or cap, is equal to that of the lower base.

These rules are very general, and are the nearest approach to regularity; but as the members of the orders are not always precisely alike in every composition, but vary according to the effect required, the proportions of the smaller members change of course. And, indeed, there are great variations in the general proportions of the orders among those remains of ancient art which are regarded as models in this study: thus, we have instances of the Cornice being in height half the entablature; of many members of the entablature being suppressed; and even of an omission of the whole Architrave and Frieze; the columns supporting only the Cornice. These instances, however, must be considered as licentious, unless we were acquainted

with the motives which actuated the architect in his departure from general and established principles.

The proportions of columns also are not always the same; but in many justly admired ancient buildings are not so tall as the moderns generally make them.

Fluting of columns is supposed to render their superficies more sensible, and, in consequence, to increase the apparent diameter of the column; so that a plain shaft shall seem thinner than one fluted.

Flutings should never exceed twenty-four in number, to the lighter orders; twenty is sufficient for the Doric; In some instances the ancients used only sixteen.

The flutings of the Ionic, &c. are separated from each other by a fillet of about one-third of the flute in width; but Doric flutings terminate *sharp* in the superficies of the pillar, without any fillet between them.

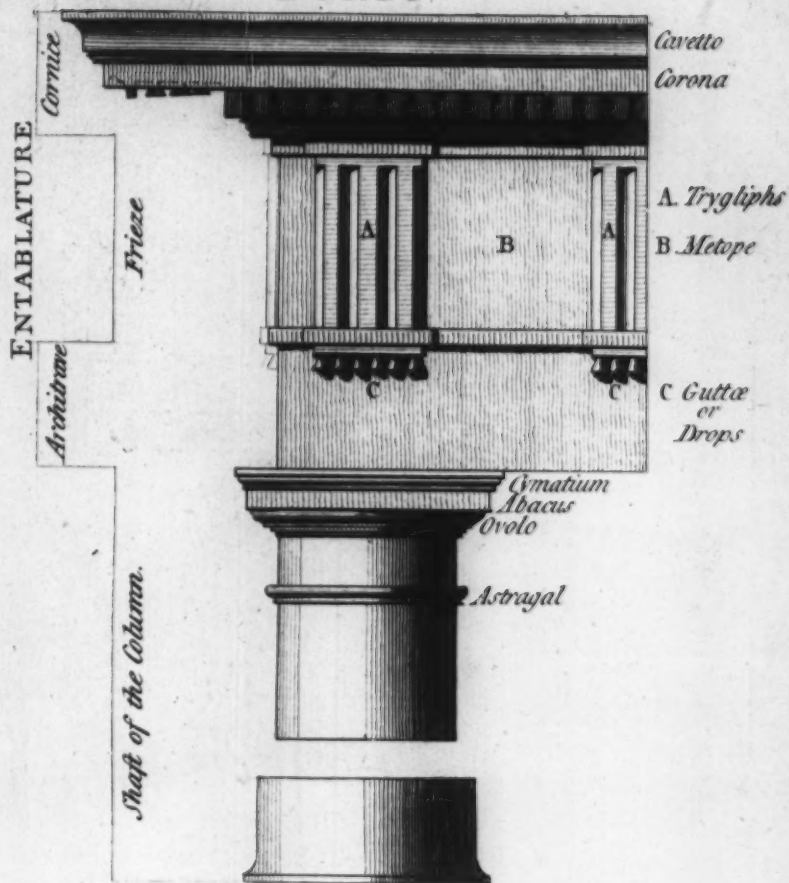
Sometimes the flutings are filled up one-third of their height with ornament; which, when well cut, has a rich effect: Sometimes they reach only one-third of the height of the shaft, the upper part being plain; and sometimes they commence at one-third of the height, and proceed to the top of the shaft; the under part plain.

#### P L A T E, XIII.

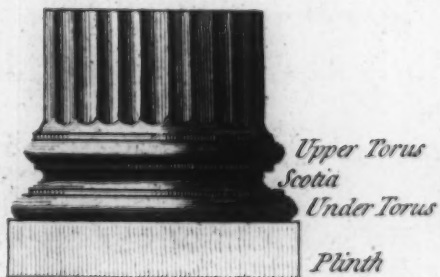
No. I. This plate exhibits an example of the DORIC order, from the Theatre of MARCELLUS at Rome; which is usually regarded as a correct specimen: yet is, contrary to the precept of VITRUVIUS, (who says, dentils, as ornaments, are peculiar to the IONIC order) this cornice being decorated with dentils. The drops also beneath the corona, instead of being horizontal, are inclined.

No.

# DORIC



N<sup>o</sup> 2.





1770

1770

1770

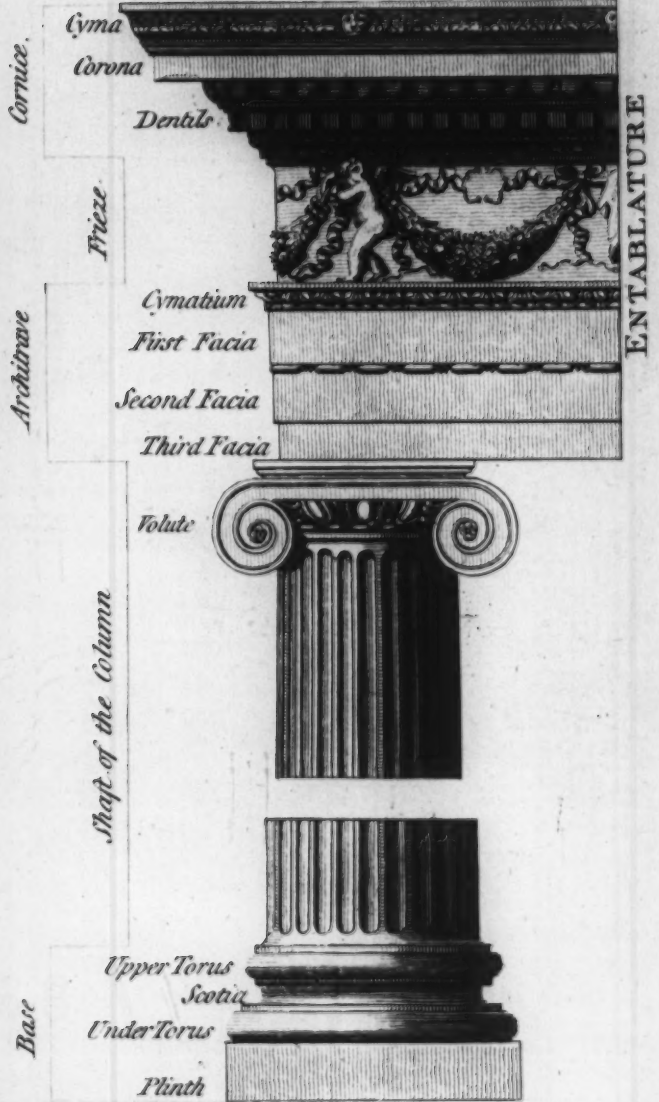


1770

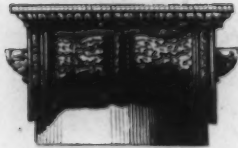
1770



# IONIC



N<sup>o</sup> 2.



N<sup>o</sup> 3.



No. II. We have already observed, that the ancient Doric had no base; yet, as a base seems to be a necessary inferior termination to a column, the moderns never omit it. This base is after a design of PALLADIO, and is generally considered as a very applicable composition. This figure also exhibits the peculiarity of the Doric flutings; *i. e.* their sharp terminations on the surface of the column.

The names being written to the principal members of this plate, supersedes the necessity of any further explanation. Those small flat members which are in this base between the Scotia and the Torus, are denominated fillets, and distinguished by their situations, as the fillet of the Torus, &c.

#### P L A T E   X I V .

No. I. This IONIC example is taken from the Temple of FORTUNA VIRILIS at Rome: which is usually supposed the most elegant instance of this order. The names being written to the parts, they need no explanation.

No. II. The Capital of this order being very peculiar in its construction, has given rise to more than one manner of composing it. The ancients usually adopted that which appears in Fig. I. which on one front had an ornament originating near the top of the Capital, and continued spirally to a center. On the other front (or more properly the side-front) this ornament was omitted, and the correspondent parts were embellished with leaves, fillets, &c, as appears in No. II.

No.

No. III. Represents a more modern Capital, whose volute is the same on both its sides; and which being set angle-wise, has the same effect all round the Capital. This volute originates from an ornament composed of eggs and darts, called the Echinus: between the originations of the volute is a flower.

## P L A T E XV.

Is an example of the CORINTHIAN order, from the PANTHEON at Rome: the richness of this Capital deserves notice. The ornament marked with a star, is a side view of the Modillion: of which those on the same line with it are front views. The base of this order has a greater number of mouldings than the Ionic, to increase its richness.

## P L A T E XVI.

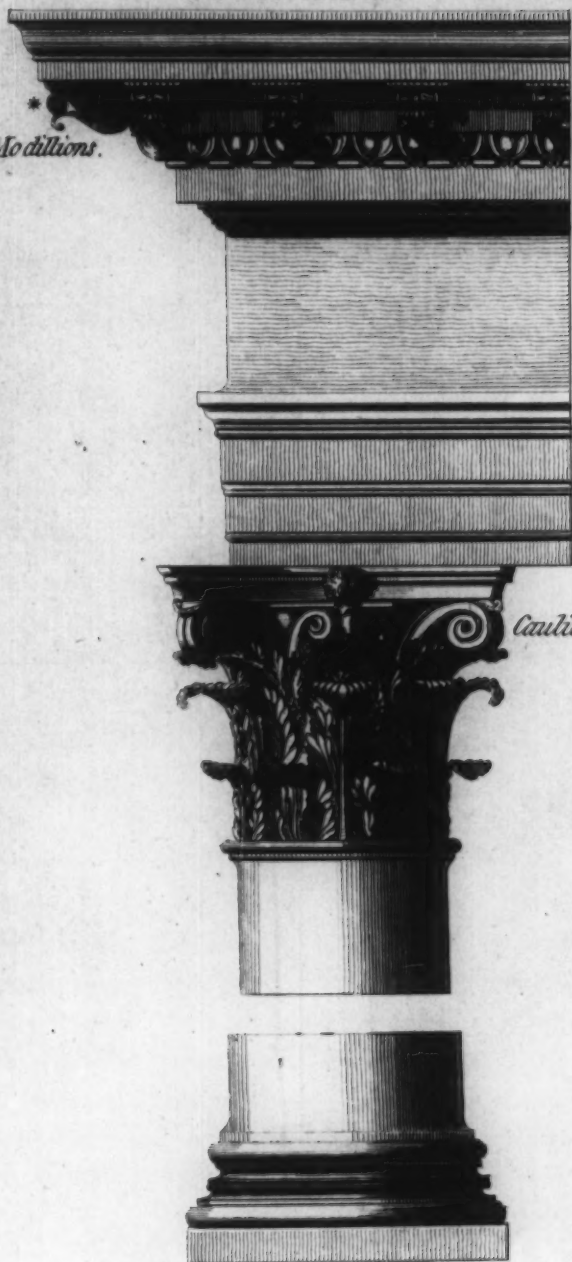
This example of the COMPOSITE, or ROMAN order, is from the arch of TITUS at Rome. The Base nearly resembles the foregoing Corinthian: the Capital is composed of the Corinthian Acanthus, &c. but instead of the Caulicoli, has superadded the Echinus and volutes of the Ionic order. The Cornice also (which in this instance is of great height) has the Ionic dentils, as well as the Corinthian modillions. There is always danger lest these ornaments should too nearly resemble each other; the dentils, therefore, should be in smaller proportion than in their proper order, and the modillions larger. The ornamented frieze of this example shews of what decoration that part is capable. The whole of this order is richly ornamented.

PLATE

CORINTHIAN.

*Modillions.*

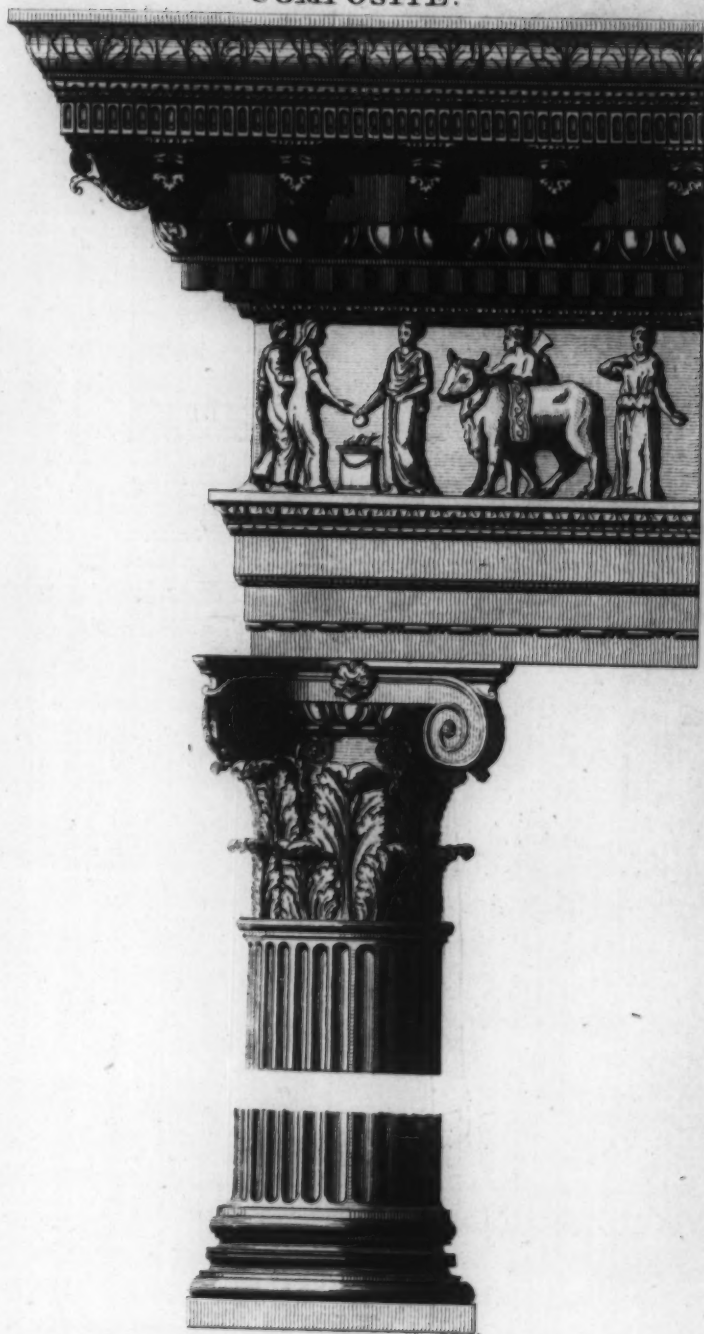
*Caulicoles*

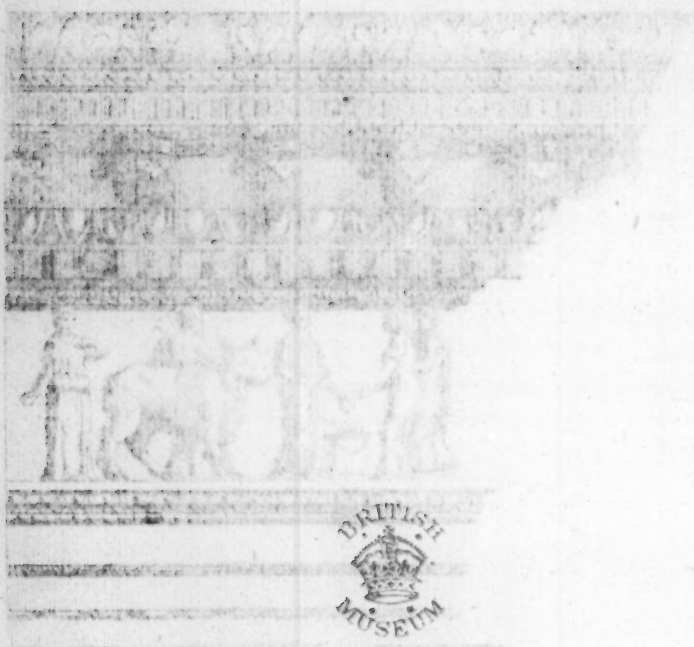


COMPTON



COMPOSITE.



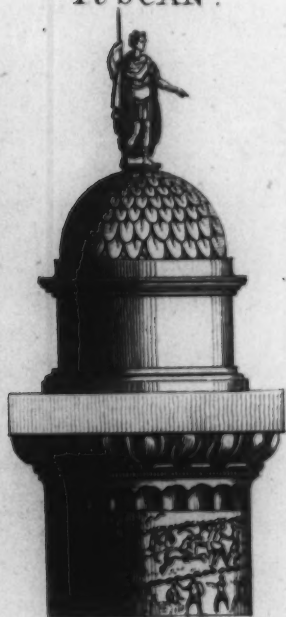


BRITISH  
MUSEUM

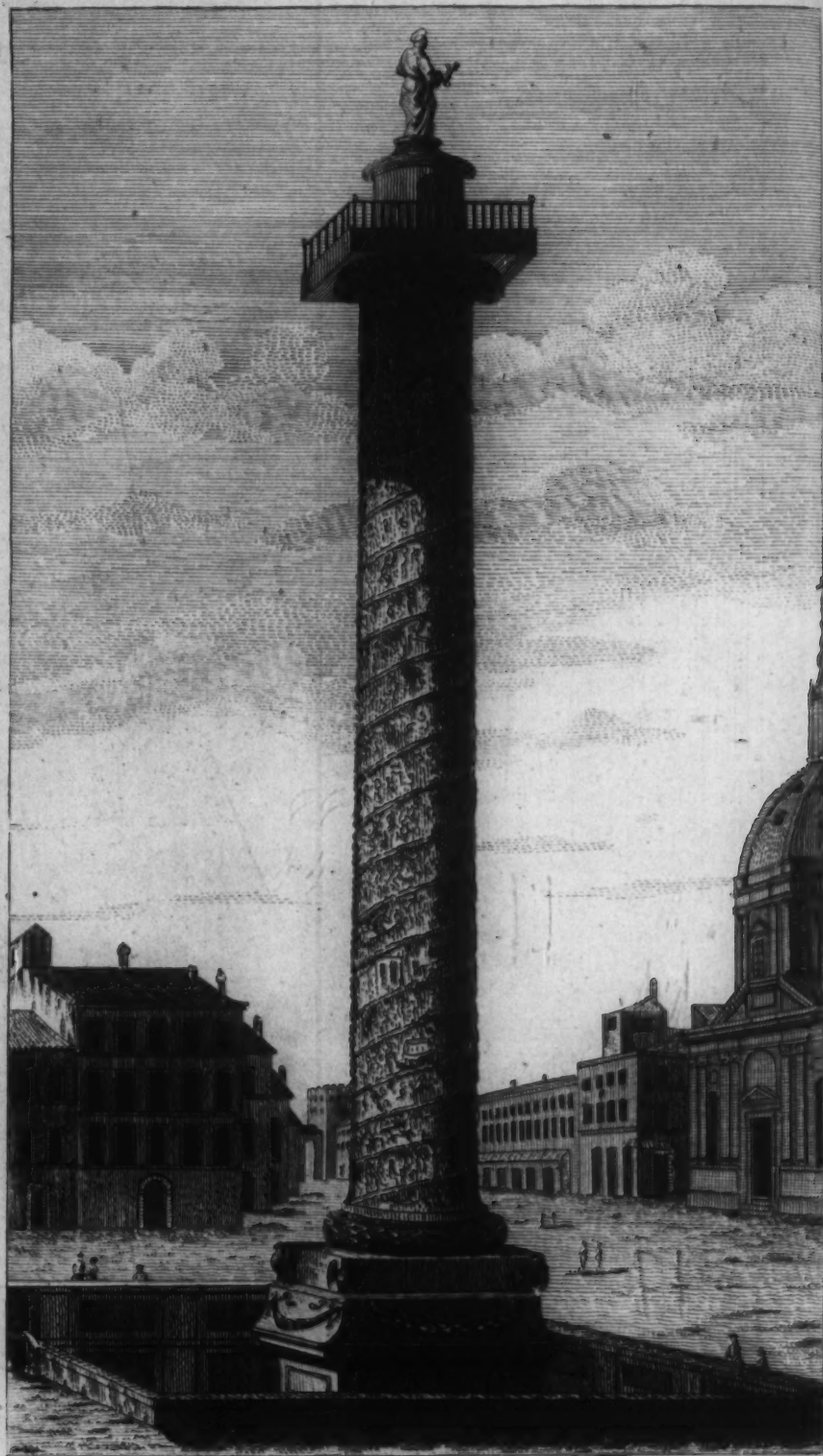




TUSCAN.

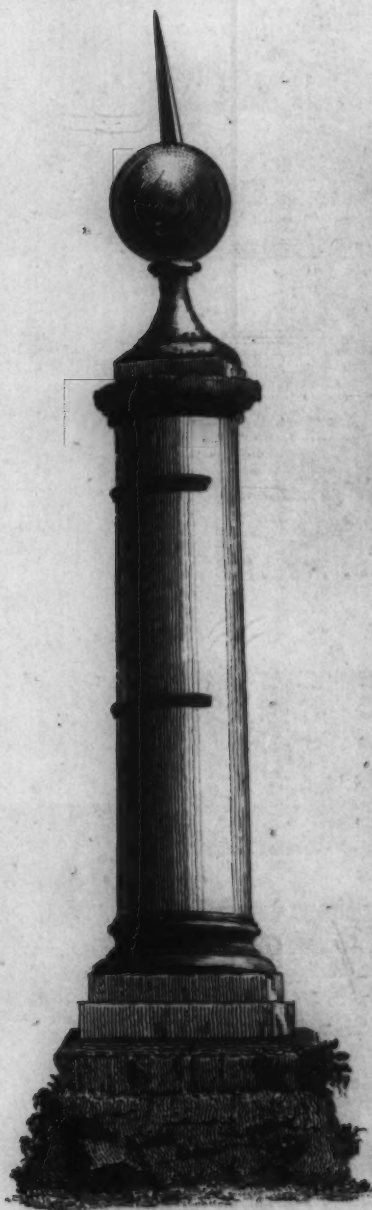




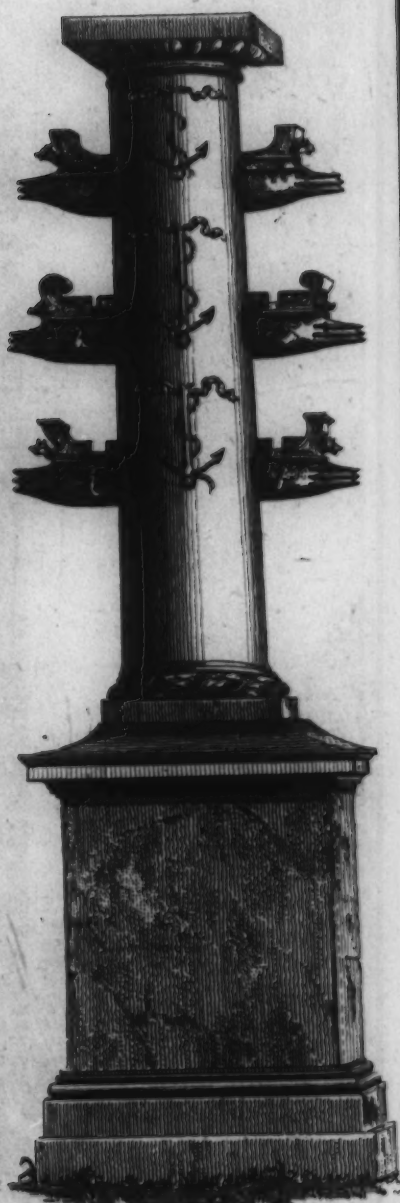


*View of TRAJAN'S PILLAR at Rome.*





*Military Column*



*Rostral Column*

*at Rome.*

## P L A T E   XVII.

The instance of the TUSCAN order here selected, is the pillar erected to the honour of TRAJAN at Rome. This example also shews the addition of a pedestal, which here is richly ornamented: the base of the column has a kind of double plinth, which is not usual, but in this commemorative erection has a good effect: as have likewise the eagles, (the Roman symbol) which also are characteristic. The Torus of the base is ornamented with oak-leaves bound around it; and the shaft with historical sculptures, representative of TRAJAN's victories, &c. This print exhibits the pillar as supposed in its original state.

## P L A T E   XVIII.

Is a VIEW of TRAJAN's PILLAR in its present state, with modern additions and variations; especially in its top, whereon stands a statue of St. Peter; to whom this pillar is now dedicated.

## P L A T E   XIX.

THE MILIARY COLUMN. THE ROSTRAL COLUMN.

These two columns are rather given because of their curiosity as antiques, than as examples for imitation: their proportions being much beneath the regulations of the orders. The first is a pillar erected to mark the distance of a mile from Rome: the second, which is ornamented with the prows of ships and anchors, is a monument of the naval victory of DUILLIUS, the Roman consul, over the Carthaginians; the first naval victory of importance gained by the Romans. It is doubted whether this pillar is the ancient erection, be-

cause the whole is of marble; whereas, history informs us, that this trophy was decorated with the very beaks from the enemy's vessels. On the pedestal is the ancient and genuine inscription.

## P L A T E S    XX and XXI.

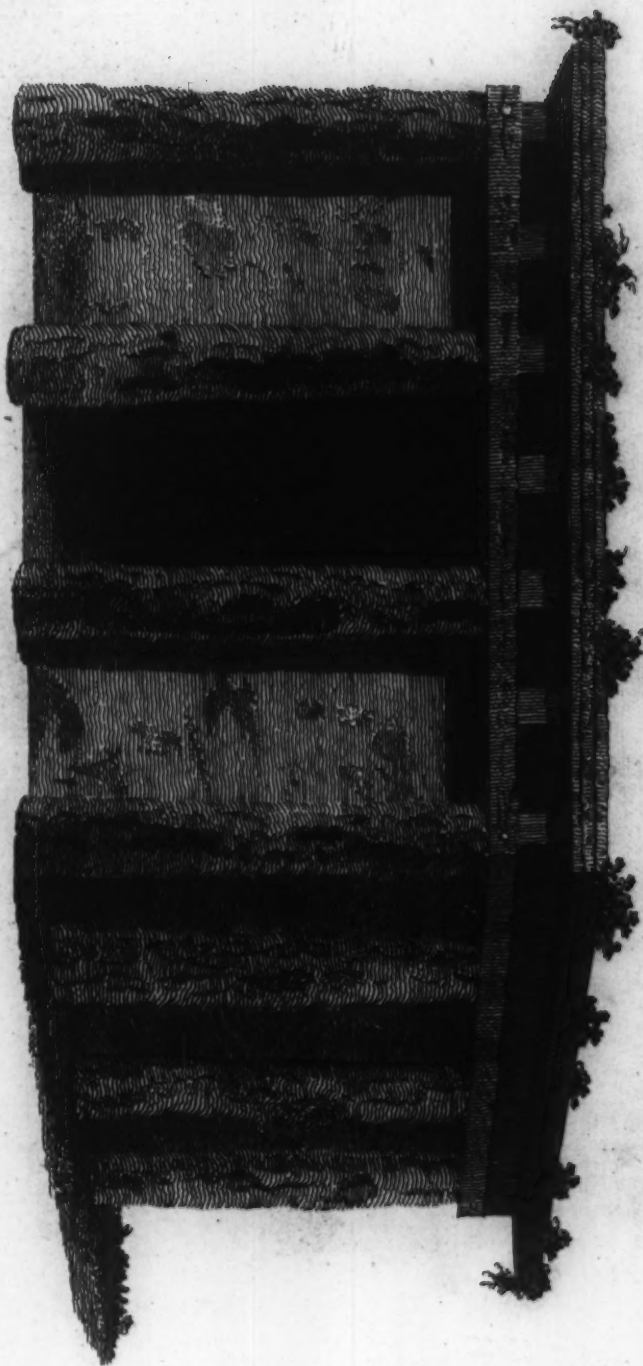
These plates represent the supposed progress of the DORIC order. In the first we observe, the uprights are merely trees, placed as supports to the impending timbers; the interstices between them being filled up with mud (or clay) walls. The Architrave is a solid beam, laid on the walls from end to end: and the Trygliphs are in this instance accounted for by supposing them the ends of the cross-beams which support the roof. The Cornice is merely thick boards projecting to cover the whole.

In the second example this composition begins to assume an air of regularity: the trees are not only stripped of their bark, but smoothened and rounded; they have also a base, (perhaps somewhat too early) and a kind of trencher Capital. The Trygliphs here seem to originate from the insertions of the cross timbers to the frieze-beam on this side; and the mutules immediately over them, from the ascending beams which support the roof. The Cornice is formed by the projection of the covering of the roof; which is composed of thick boards, and plaistered over with clay.

The transition from these rude essays to more regular proportions, may easily be imagined, or gathered from what has been already delivered.

P L A T E

*Fringed of the Doric order.*







*Front of the Doric order.*

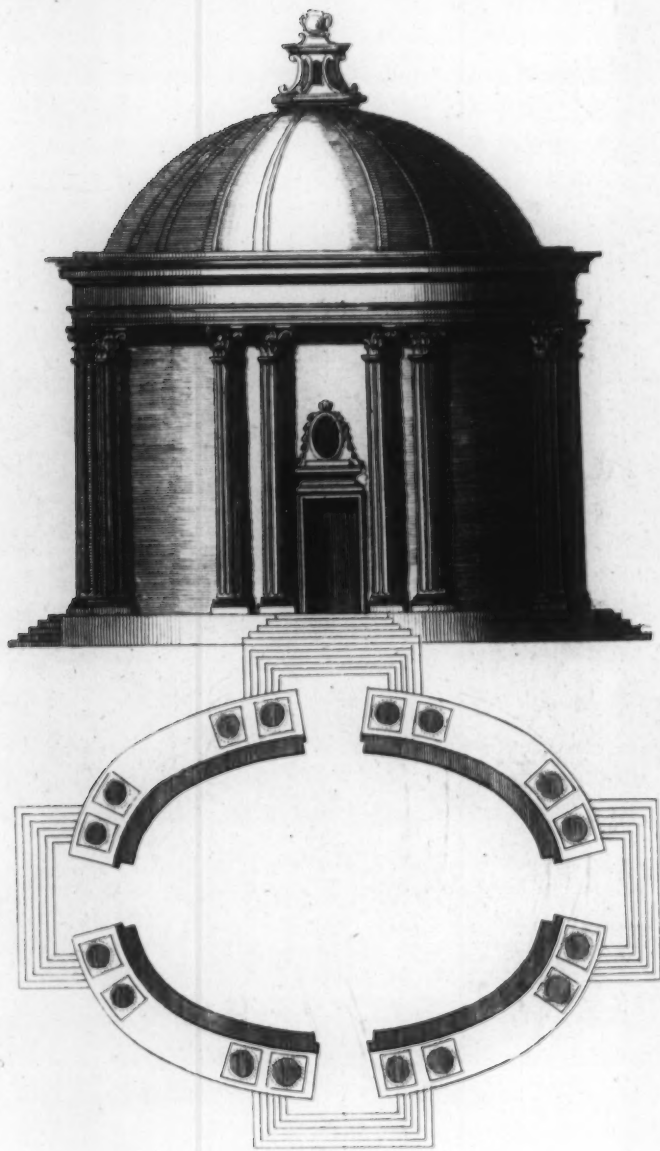






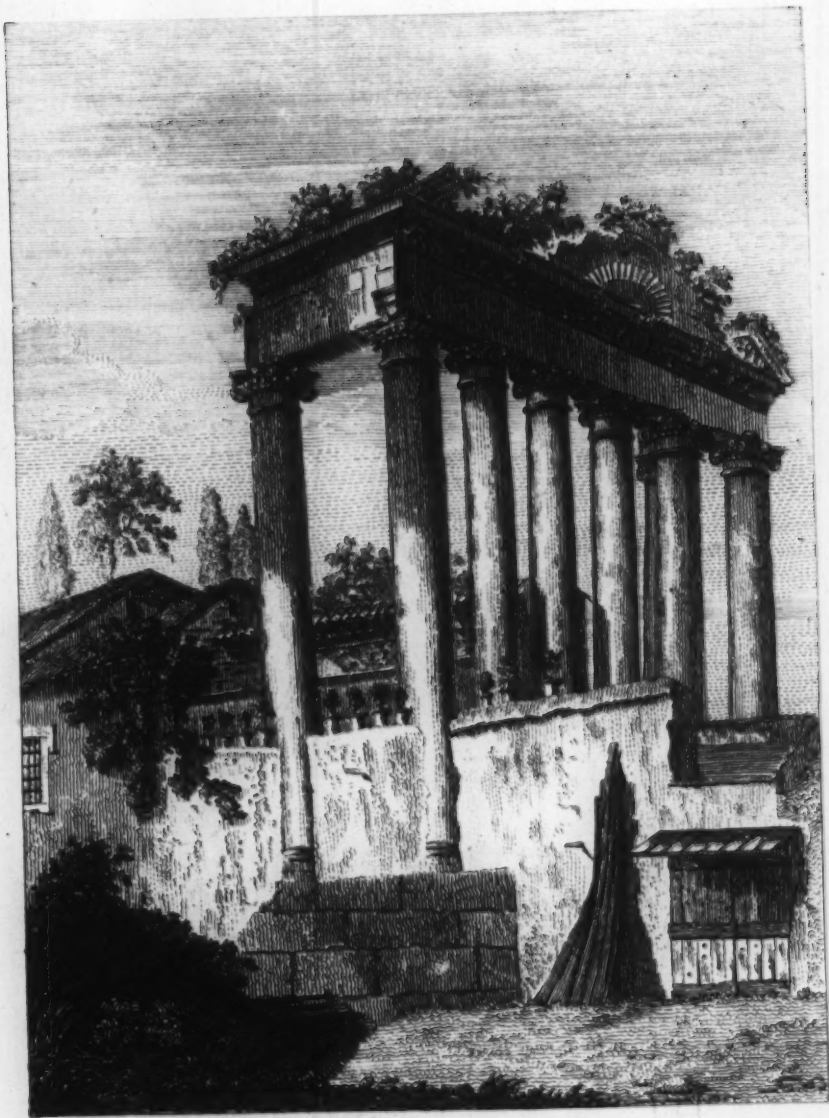
*Origin of the Corinthian Capital.*





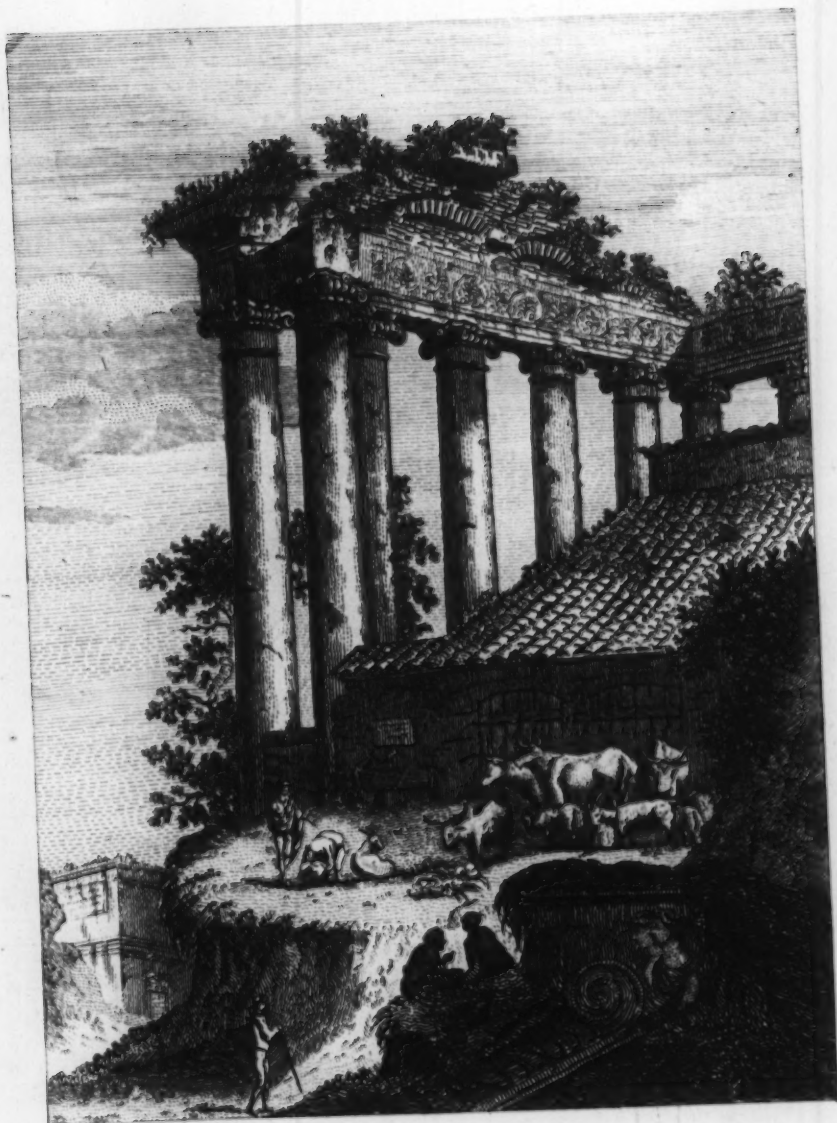
*An Oval Temple.*





*Outside View of the Portico of the Temple of Concord at Rome.*





*Inside View of the Portico of the Temple of Concord at Rome.*

P L A T E XXII.

ORIGIN OF THE CORINTHIAN CAPITAL.

The story relating to this plate has been already repeated in the LECTURE: This subject, therefore, needs no further explanation.

P L A T E XXIII.

AN OVAL TEMPLE.

This plate is a deviation from the general principles adopted in temples; such a design might have a very good effect in a garden, &c. where room is wanting; as it does not occupy much space, yet presents a very agreeable front.

This is from the antique; and by the situation, and number of the doors, is supposed to have been dedicated to VENUS.

P L A T E S XXIV. and XXV.

Two Views of the Remains of

The PORTICO OF THE TEMPLE OF CONCORD at Rome.

This portico was of the Ionic order, and is in great esteem: we have therefore presented both an external, and an internal view of its remains.

## P L A T E    XXVI.

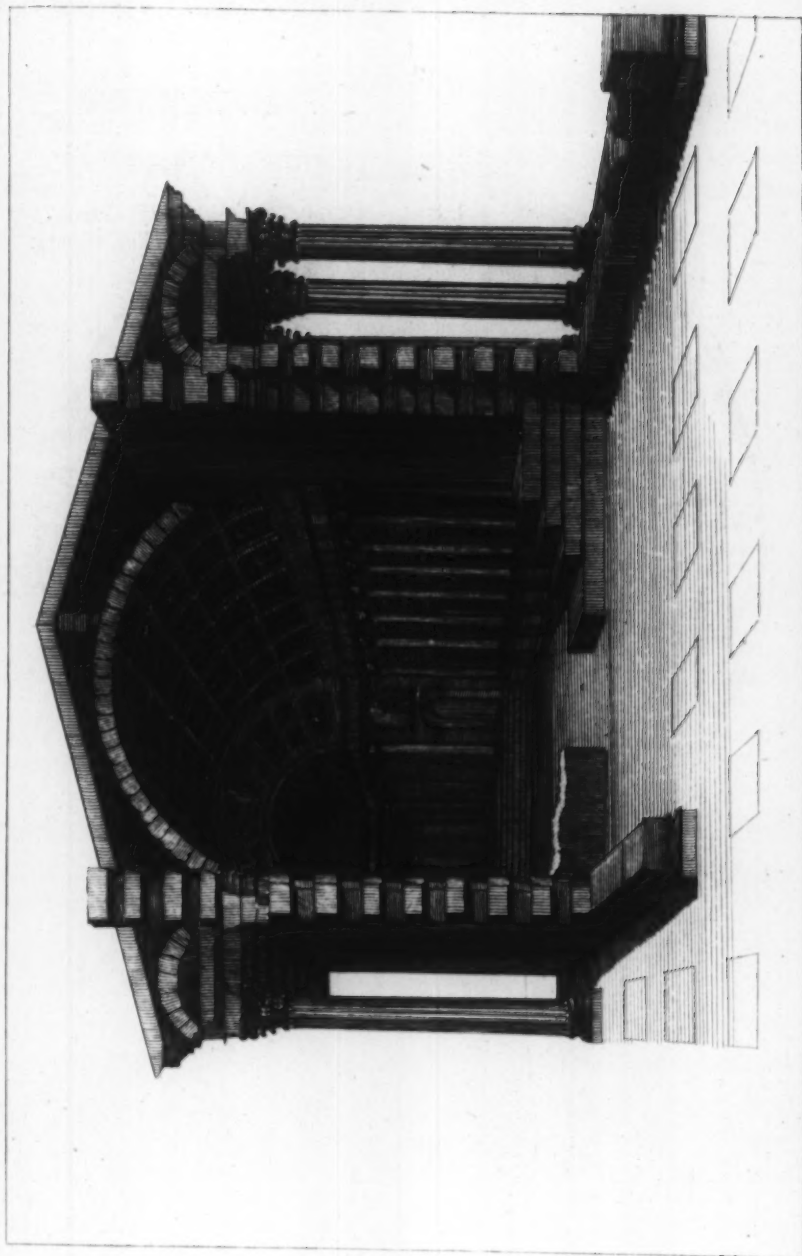
## GENERAL DISPOSITION OF A HEATHEN TEMPLE.

This plate shews (by a licence which is not forbidden to architecture), the plan and section, &c. at the same view. The places of the pillars in the portico are indicated by squares on the pavement: the front wall and door-way is supposed to be broken down, in order to permit a view into the body of the building; which appears ornamented with pillars, &c. At the further end a flight of steps forms a division in the temple, and elevates that part of it: the statue of the supposed Deity may be conceived to be placed in this part; also rooms for keeping the sacerdotal vestments, &c.

## P L A T E    XXVII.

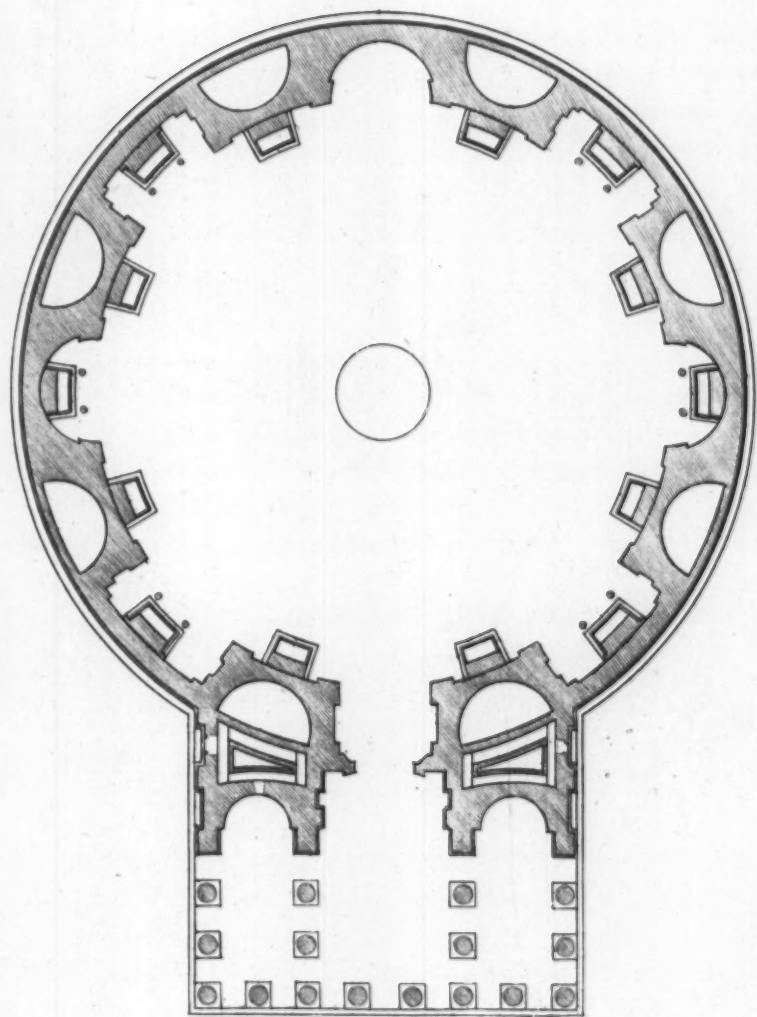
Plan of the PANTHEON at Rome, on a larger scale than in a former series: This shews very distinctly the situations of the altars around the circumference, which were dedicated to the principal Deities of the Romans. The large niche opposite the door contained a colossal statue of Jupiter: Colossal statues of AGRIPPA and AUGUSTUS were also in the great niches in the portico. This temple was not only an edifice of great estimation among the ancients, and considered by them as a capital fabric, but it receives additional value at present by having escaped, in a great measure, the ravages of barbarians, and of time; so that it is now supposed to be the most perfect Heathen temple existing. It is not, however, at present in its original splendour; its ornaments, which were mostly of bronze (and some of silver) being taken away from the inside; as are its bronze gates, the ornaments of the portico, &c. Nor is the upper part of the portico as at first composed, having undergone modern repairs, alterations, and additions.

P L A T E



*Disposition of a Heathen Temple.*





*Plan of the Pantheon at Rome .*



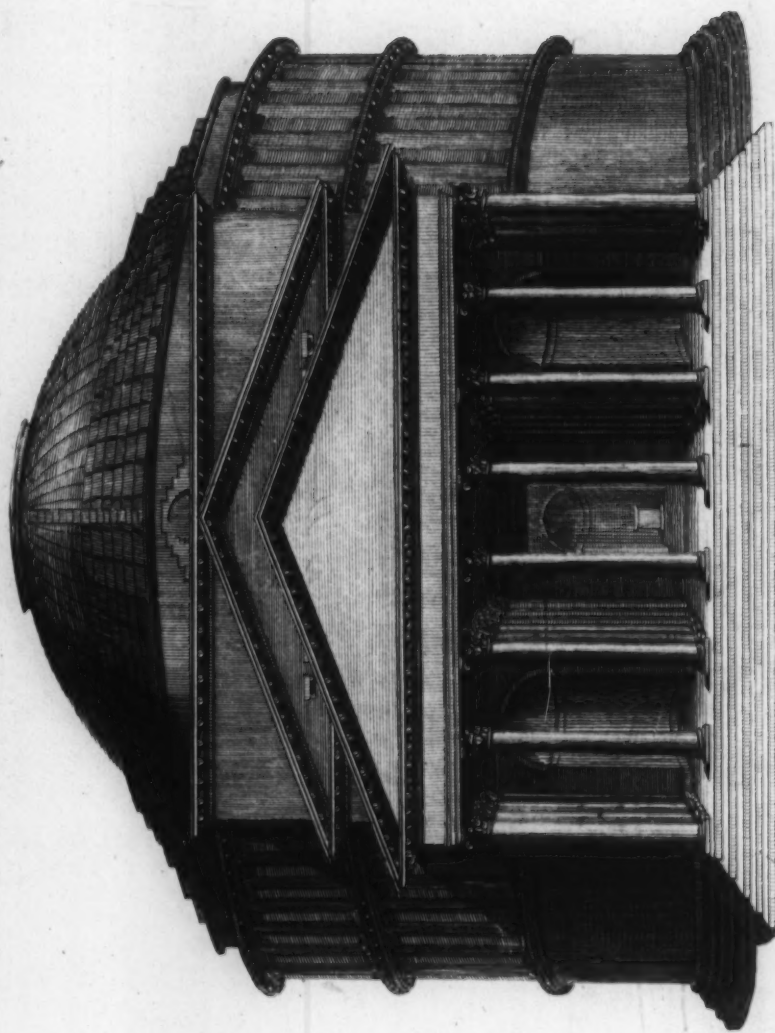




*View of the Portico of the Pantheon at Rome.*

... and ...





*Perspective Elevation of the PANTHEON at Rome, supposed in its original state.*

## P L A T E XXVIII.

The PORTICO of the Pantheon being a piece of architecture, in high estimation, we have given a view of it as it now stands. In this view the modern belfrys which are erected on it are not seen; the representation being intendedly confined to what is antique,

## P L A T E XXIX.

This PERSPECTIVE ELEVATION of the front of the Pantheon supposes the structure to be as when finished by the architect: but as it is impossible to determine the effect of the additional ornaments, they are omitted; as are the statues, &c. above-mentioned. The pilastrades, which surround the body of the building, are very much doubted of by some architects: The whole was so elevated by the steps which are at bottom, as not only to augment the grandeur of the edifice as to its appearance, but also to prevent the effects of inundations of the Tiber; which now often incommode the very door-way.

On the Frieze is this inscription, importing it to be erected by MARCUS AGRIPPA; but whether he erected the whole, or only the portico, is not agreed among Antiquarians.

M. AGRIPPA, L. F. COS. TERTIUM FECIT.

Inscriptions on the Architrave, import that the Emperors PERTINAX and SEPTIMIUS SEVERUS did some repairs to it.

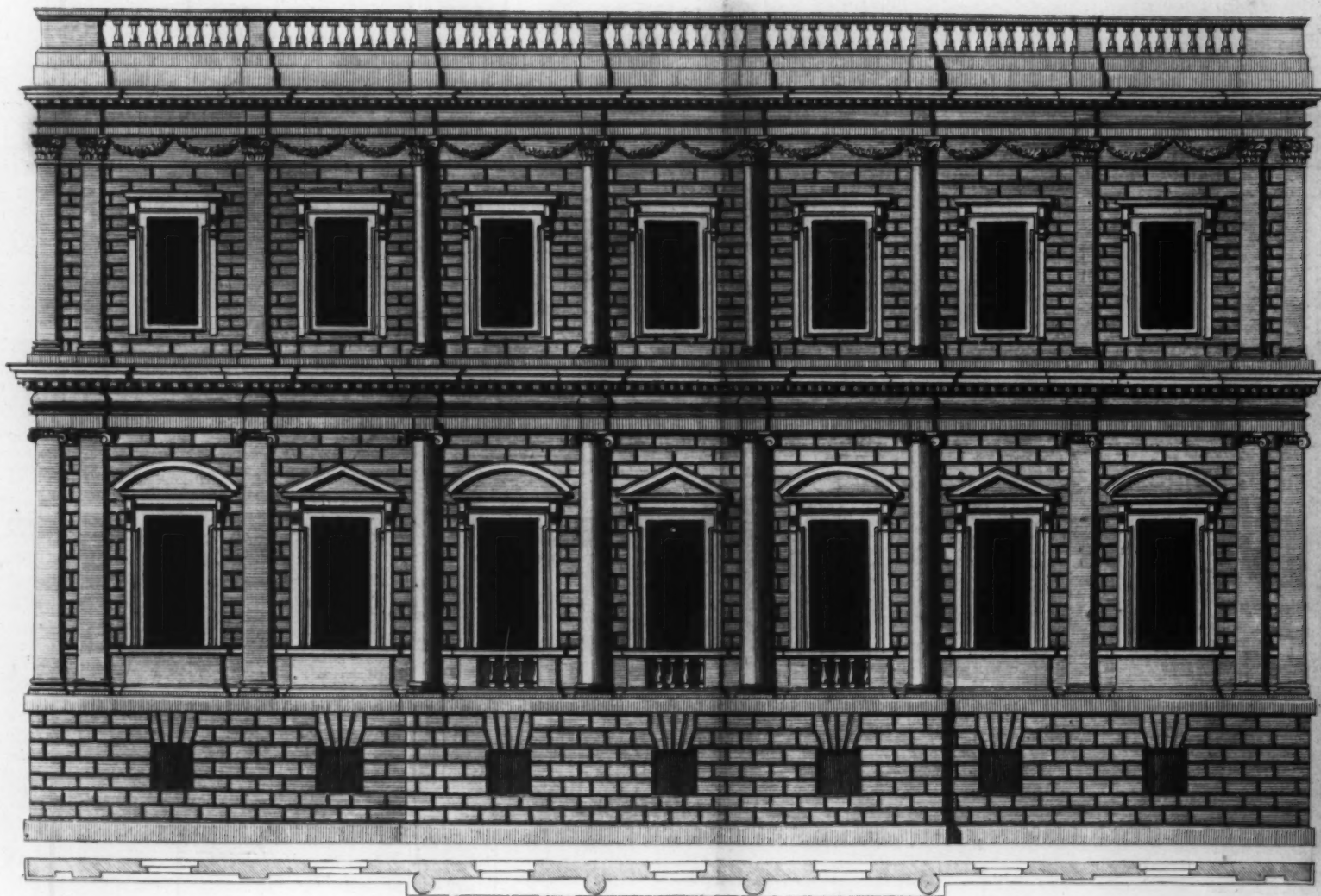
P L A T E

## P L A T E    X X X.

Elevation of the front of the BANQUETING-HOUSE at Whitehall. This very elegant building was erected by INIGO JONES, as a specimen of part of an intended Royal Palace: a plan, which, if it had been completed, would have placed the British reputation in architecture above that of any other nation. The Banqueting-House is justly reckoned the most correct, as well as most elegant structure we have: In this series it not only claims a place for its merit, but also as being an example of super-columniation, or order over order: the inferior being Ionic, the superior Corinthian.

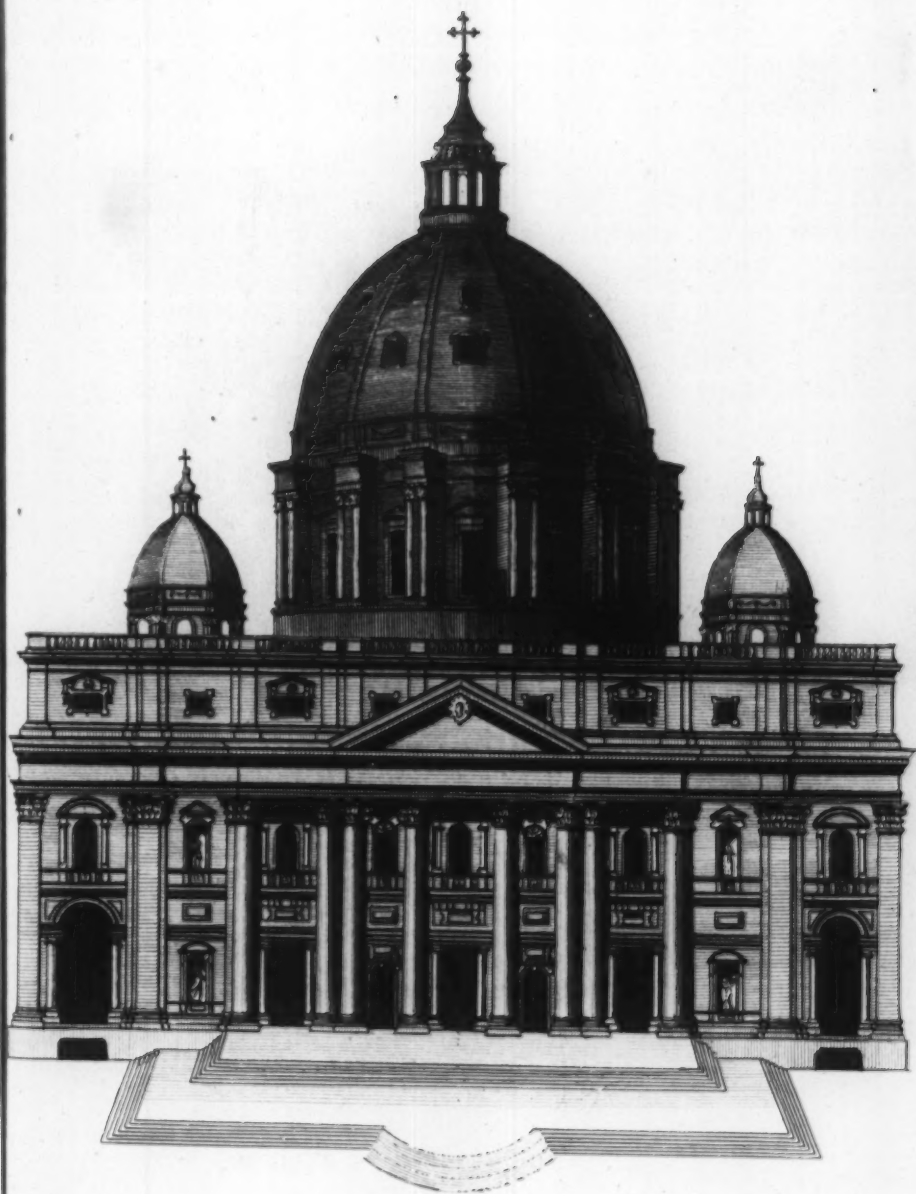
## P L A T E    X X X I.

The front of St. Peter's at Rome is given here, in order to admit a comparison with the Portico of St. Paul's at London: the observations usually made on it, are, that the attic, with which it is crowned, is much too high for the order beneath it; being more than one-third (which is the usual proportion) of the supporting order. Moreover, the pediment in the center is, for so large a front, very ill supported by four pillars, and should have had six at least: To which may be justly added, that the whole front being apparently of equal projection, the parts are not distinctly marked, nor is there any great effect produced by such trifling shadows as the parts can cast.



*The BANQUETTING HOUSE White Hall.*





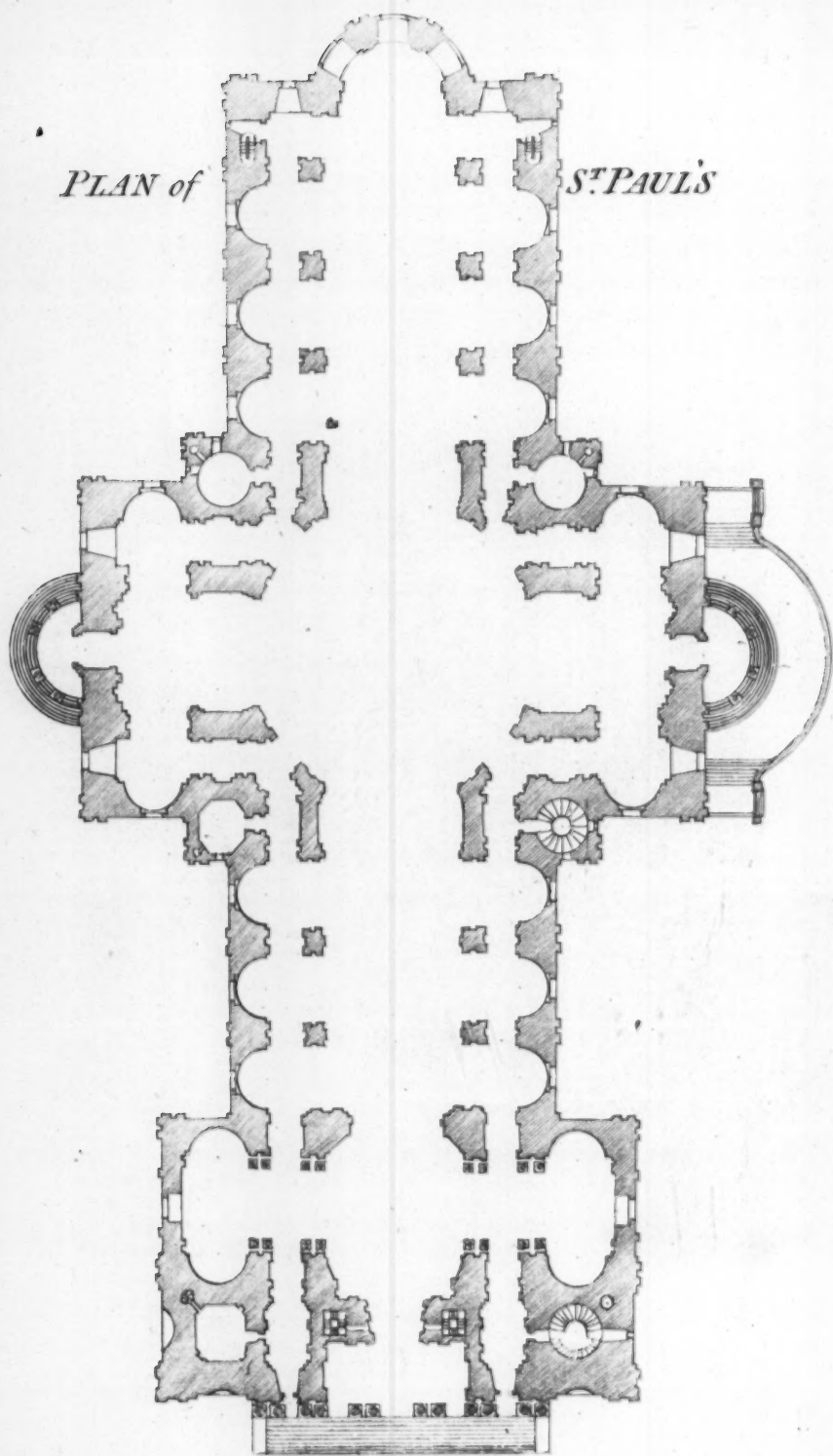
*Front of S<sup>T</sup>PETER'S at Rome.*



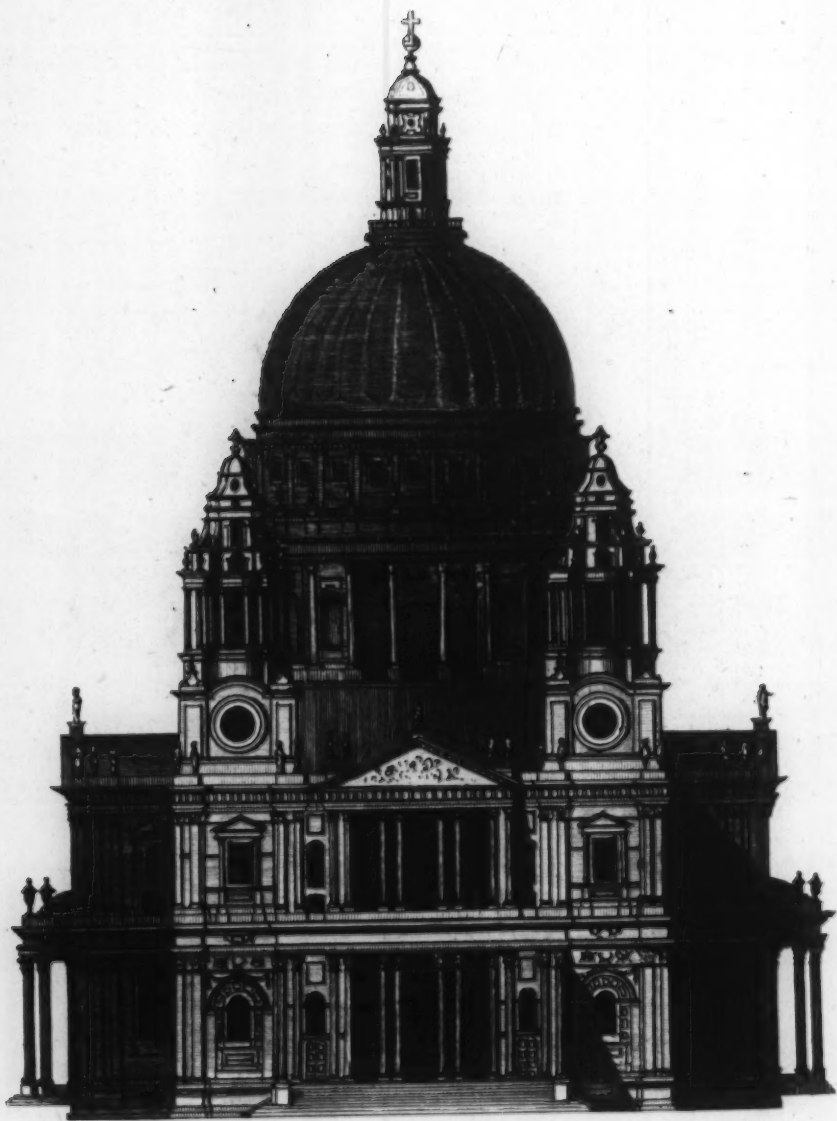


*PLAN of*

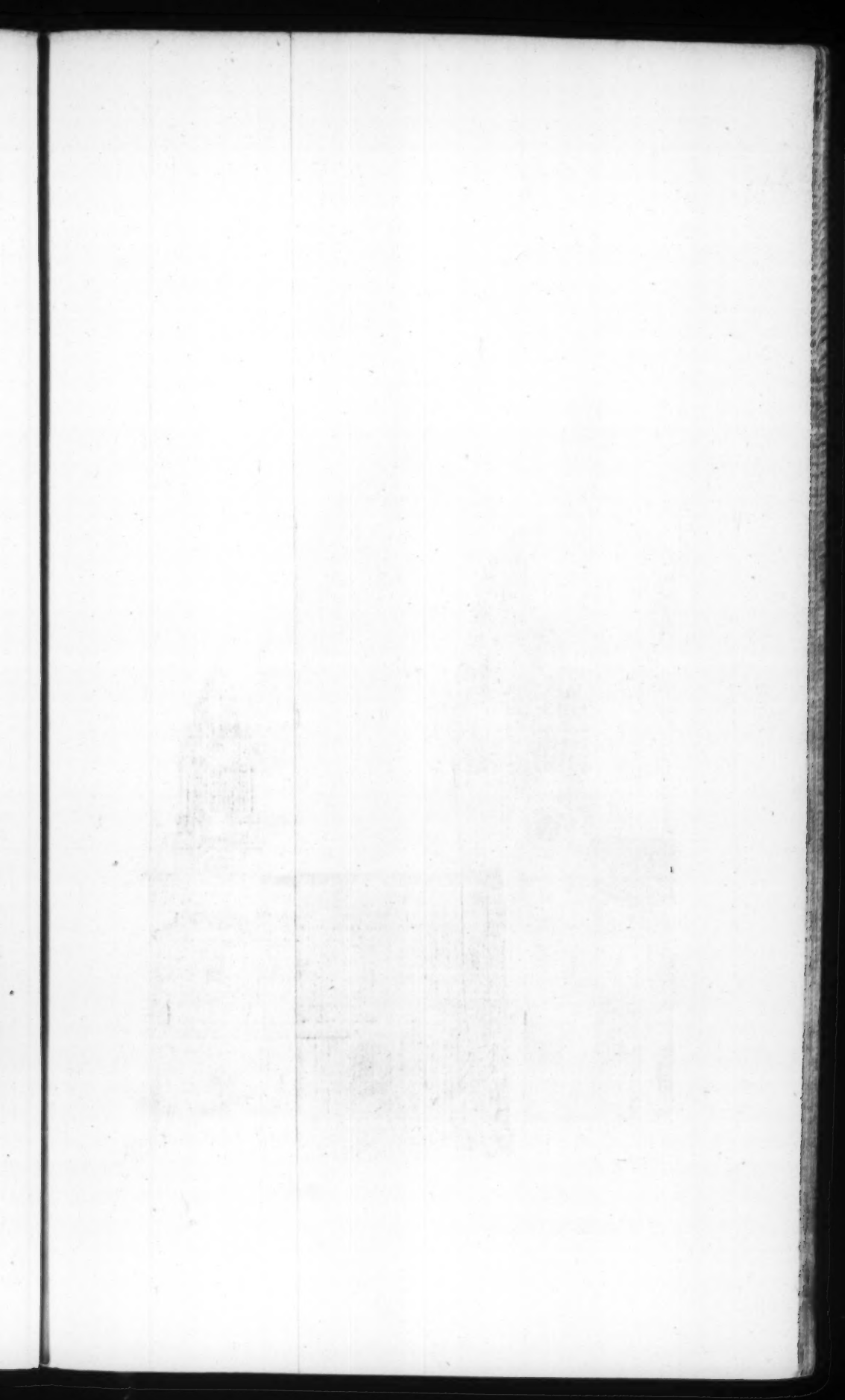
*ST. PAUL'S*

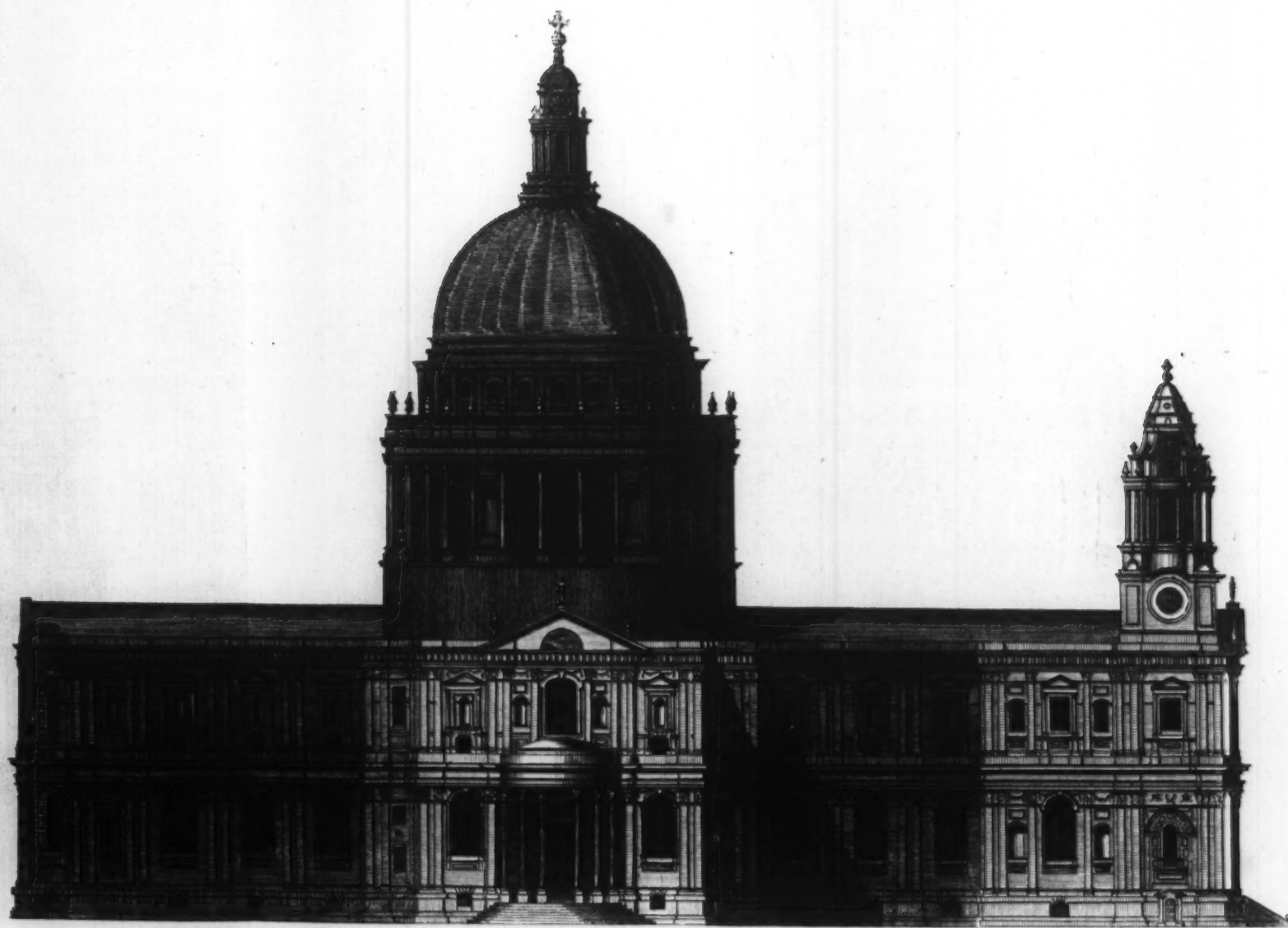






*West front of S.<sup>T</sup> PAULS London.*





*Side ELEVATION of S<sup>t</sup> PAUL'S London.*

P L A T E XXXII.

Plan of St. Paul's at London.

P L A T E XXXIII.

Elevation of the WEST-FRONT of St. PAUL'S.

P L A T E XXXIV.

SIDE-ELEVATION of St. PAUL'S.

These plates shew the composition of this noble building, and its distribution: the motion of the parts (i. e. their variety and situation) is very happy, and the magnitude of the center grand. It is to be observed, that in so large a building the perspective adds to the variety of the design: The front is not like St. PETER'S *evidently* on an equal line, but by the recesses behind the pillars supporting the pediment, (which answer to what the Italians call a Logio) it acquires a shadow and depth. The projections of the parts on the sides, are more distinct and compact than the same parts in St. PETER'S. The situation of the stair-cases adjoining the body of the church, is at the same time commodious, adds to the importance of the center, and breaks the otherwise too sudden lines of the building.

The height of the Dome is said to have exceeded what Sir CHRISTOPHER WREN could have wished; but was necessary to satisfy the public. The decorations of the inside were never executed according to the proposed plan; the Dome is double; the inside Dome being a cone of brick-work, the outside supported by timbers, &c.

From



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From

From this, and the preceding series of plates, our readers have formed a general idea, not only of the progress of the science of ARCHITECTURE (which, from an insignificant beginning, has attained both utility and magnificence) but also of its leading principles in those parts which are usually objects of design. It is not to be expected, that every part of this so very extensive and multifarious science should even be mentioned, much less discussed in the contracted space allowed to these lectures. Many folio volumes have been written on the subject, and every year adds to the number, as well at home as abroad.

It is, perhaps, much to be wished, that representations of the capital productions of Architecture were more easily to be procured: it is true, many may be found scattered throughout the volumes of authors on the subject; but a well chosen collection is wanting. Such a work ought to exhibit, not only the erections of modern times: but also the remains of the most important antiquities, which thereby might not only become lessons and studies for younger artists, but also contribute to a comparison between ancient and modern art. Would not such a work be acceptable to the public? We may justly assume some merit, in having in the foregoing series attended to this principle: it has not only augmented the variety, but also, we hope, will be thought to add to the importance of this collection. And we doubt not, the specimen will give pleasure to our readers.

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## LANDSCAPE.

**L**ANDSCAPE, LADIES and GENTLEMEN, is a part of painting so very extensive and interesting, that it may be said to include most other branches of art. Equally delightful as deceptive, and, by the nature of its objects, not only generally agreeable, but generally intelligible: Possessing unlimited powers of selection, and not confined to particular spots, but collecting from every quarter, and combining beauties from all parts, it is capable of endless variety, and furnishes perpetual successions of pleasure and satisfaction. Landscape has many advantages over historical painting; its subjects being more familiar to the spectator; consequently more impressive, and more immediately understood by him, and its errors less apparent. The want of expression, or proportion, in a head, or a figure, is obvious; and not less offensive than obvious, because the forms proper to the part are regular and constant: whereas, branches of trees, or

projections of buildings, are not in conformity to any certain regulations, neither are they of such importance (generally) as that a failure in expressing them perfectly, should ruin the piece. It is no wonder, therefore, Landscape should be a favourite study, should be greatly encouraged by the public, and readily professed by Artists; but let it not be supposed, that to attain excellence in Landscape is without difficulties; rather, perhaps, there have been fewer capital Landscape painters than any others. Of the numerous tribe who have professed this branch of art, many have succeeded so far as a certain mediocrity; but the principles which conduce to excellence are not less profound in this, than in other studies of art, nor less concealed from the observation of inattentive negligence.

For the sake of perspicuity, I shall divide the study of Landscape into three distinctions. First, that which proposes as its object the sublime and grand; which, if you please, we will call the HISTORICAL. Secondly, that which endeavours to represent a faithful picture of Nature as she is; and this we denominate the RURAL. Thirdly, I conceive that VIEWS of particular places, wherein accuracy is an important principle, may justly be called Landscape:

scape: and in this sense, a view of a town, or a city; or a view within a town or city, though composed of buildings and similar objects, yet becomes a Landscape. In order to comprehend more clearly the peculiarities of these styles, we must attend to what they respectively propose as their objects.

The HISTORICAL style of Landscape supposes, that in representation of common life, or of articles which are perpetually under our notice, there is something rather vulgar and ignoble; to which the eye is too much accustomed, and with which it is too familiar, to produce any considerable impression on the mind. Such objects have lost their novelty, their power of attraction, and of exciting attention; therefore this style seeks in unusual objects, situations and forms, what shall rouse, and, if possible, rivet the spectator's regard; but, besides being uncommon, the composition must be beautiful and engaging, lest disgust, not pleasure, should succeed inspection. These qualities are sought in commanding situations, and bold projections; in masses of rocks and mountains; or whatever nature presents as solemn and stupendous: In noble fabrics, temples, palaces; in ruins of capital buildings; and the most magnificent exertions of art: the lofty turret,

the ivy-mantled tower, the consecrated aisle, the melancholy tomb; and whatever seems adapted to impress vigorous sensations on the spectator's imagination. It disregards the smaller particles (if I may so say) of a composition, and offers only the larger and principal effects; omitting those details which might weaken the power of the general *effort*.

The RURAL style of Landscape, well aware that while few can feel the enchantment of sublime composition, many are highly delighted with that representation of nature which is related to the world about them, seeks little beyond a successful application of its deceptive powers, which may induce the spectator to suppose, that he really sees the very articles as if in existence, whose forms are expressed by the magic pencil: the looking-glass of art! As there is in the human mind a certain propensity to joy and cheerfulness, the rural style selects whatever is allied to festivity and mirth, or to repose and tranquillity; the simple cottage; the labours of the field; the occupations of the country, or the enjoyments of rustic swains and nymphs; and seeks in the uncontrolled operations of nature, in the liberty and luxuriance of her productions, that variety which is perpetually new, and that freedom which affords

fords the most extensive range for imitations of art.

VIEWS are confined to fidelity and resemblance : the portraits of places. The artist, therefore, recurs to the happy application of scientific principles for obtaining that variety, and interest, which the objects themselves may not afford : but which, if nature has bestowed on the subject of his picture, impart to his production an importance superior to every effort of creative imagination.

A Landscape, as a picture, may be divided, I apprehend, with propriety, into four parts ; *first*, the Sky and its appendages ; *secondly*, the Distances ; *thirdly*, the Middle Distance, or Off-scape ; and *fourthly*, the Front of the picture. A few remarks on the different requisites of these divisions will, I hope, enable us to form pretty just and applicable Ideas of the treatment proper to each.

The SKY is that immense canopy, which, extended all around us, and perpetually within our notice, forms a part of that constant picture which nature exhibits to our inspection. Being originally intended for this purpose, it is happily adapted by the sobriety and moderation of its azure colour, to be surveyed without pain ; nor occasions any indisposition to the organs of our  
 sight

fight: whereas, had it been glaring yellow, or fiery red, we could not long have borne to inspect it; had it been sombre brown, or melancholy black, farewell the cheerfulness of human life. The veracity of this observation may be examined every day, and is unquestionably exact; since Nature suffers not the brilliancy of the more vivid colours to continue longer than necessary; and moderates the gloom of night by tranquil radiations of innumerable stars. The most prevalent and constant colours in nature may be denominated *demi-tints*: not white, it is too powerful; not black, it is too mournful: but the delicate and simple-blue; the lively, but not immodest green.

I shall not intrude on your time, LADIES and GENTLEMEN, by endeavouring to account for the azure colour of the sky; though I well know philosophy has, in many cases, an intimate connection with painting, and renders many services elsewhere sought for in vain. Yet, as this is not a Lecture on philosophy, I shall content myself with hinting at this connection, and recommending becoming attention to it. Moreover, I shall now, once for all, observe, that according to the various parts of the globe, the principles of Landscape require

quire accommodation. This may readily be gathered from what has been hinted on Perspective, and is so obvious, as to need no enforcement.

In some latitudes, the article which at present engages our attention, (the sky) is blue throughout; and even at the horizon is little changed in its tint: But in a climate so moist as the British, the quantity of vapours rising, falling, or floating, interposed between us and the horizon, have a very sensible power and effect. They *whiten* the colour of the sky as it approaches the horizon; so that, where it apparently unites with the circumference of the earth, it possesses a much greater share of white than of blue; and this in proportion to the humidity of the air, or the particular situation from whence we inspect it: On the contrary, the drier, purer, and less vaporated the air is, the more universally it retains its native blue.

But, beside such gradual diminution of the blueness of the sky, which is a considerable object of attention to an artist, the sky offers in the infinite variety of its CLOUDS—in their forms—and colours, a very extensive scene of observation. Sometimes, as it were, heavy laden, and scarce able to remain in the air, they appear like solid masses of vaporous condensation; their skirts  
appear

appear *hard* against their neighbours around them, and they assume the approximating colour of a heavy grey. Sometimes they seem truly the fleecy clouds, wanton in every imaginary shape, and float in transparent thinness: at other times, they speckle the heavens, and distribute themselves in airy films throughout the celestial expanse. The motions too of clouds occasion a thousand compositions of one against others; and, as they are at different heights, and often pursue different courses, they introduce infinite variety into the moving picture. Nor less extensive the range of variegated colours, reflected from every quarter of the wandering clouds: Blues and greys in every commixture; reds, from a slight tinge to a threatening scarlet; sometimes a union of both, in a heavy purple; sometimes the lively yellow decorates their edges; and brilliant with resplendent gold, they reflect the vivacity of the heavenly orb with almost equal brightness.

My notes bring me now to consider the second division into which we distributed a Landscape:—its DISTANCES. From observations already introduced in the LECTURES on PERSPECTIVE, you have acquired, LADIES and GENTLEMEN, many applicable ideas on this  
part

part of our subject. We there noticed the evident diminution of objects, the increasing feebleness of their colours, their approximation of tint to each other, by means of the air which discolours all, and imparts a blueness to the extremes of distance. Parts most elevated, we observed, are more distinctly visible than those beneath, since the vapours surrounding them are most abundant near the earth. We observed too the indistinctness of their forms, the melting of intervals into each other, confusing the extent of separation between them; and the artifice of nature, by which we are enabled to perceive very distant objects. There remains little more to add, than to remark, that the sky, as the source of light, has very great influence on the distances; in many cases imparting its own light to them, and tinging them with its own colour. As the distances are usually in or near the center of a picture, they should never be heavy, nor should they be dark, unless it be necessary to keep them down, and to moderate them, with design to assist the splendour of some more principal and favourite part in the composition, which is necessarily predominant, as being most interesting to the spectator. Least of all, should they, by the hardness of their outlines, appear as if

passed on the picture, or, as if placed there by mischance; since, if the distances do not seem to retire, or if they fail in *keeping*, in vain may the other parts of a picture be charming.

In advancing from the extremes of a prospect to the front from whence we survey it, we observe a considerable portion, which is neither distance, nor front; neither indistinct, nor palpable; neither confused, nor yet *made out*: under the term OFF-SCAPE we shall bestow a few remarks on this medium-distance.

In proportion to the nearness of objects to our view, they become more sensible and intelligible; we more readily distinguish their parts, and better discern their combinations: It may therefore happen to be requisite in the nature of an Artist's composition; to enrich this part with more than ordinary attention, while the front is kept broad, and without that decoration which it usually challenges. He may, without offence, conduct the eye to this part principally, and spread here his most captivating lights, his most harmonious and brilliant colours: he may adorn it with stately trees, whose groups would be impervious near at hand, and conduct the capacious river, whose streams would occupy too much space in front: He may here introduce objects, whose

whose magnitude, if near, would be injurious, whose disposition, or whose forms, would be too *choquant*, or disagreeable; but let him ever remember, that Keeping must regulate the whole; nor let him (as I have seen represented) place his hares running and frisking, at a distance where oxen would appear but hares; much less distinguish his insects, place them on plants of which they are peculiarly fond, and shew the parts and members by which they are arranged in classes.

The FRONT, OR FORE-GROUND of a picture, generally affords most occasion for finishing, and particularity; for here a spectator may well expect to distinguish one kind of tree from another, and one kind of cattle from another; here may an Artist exhibit his skill, in the truth and facility of his pencil, in the lightness and appropriation of his touch: but let him keep it modest; no glare, nor unbecoming levity; no frivolity, nor embroidery; let him adjust part to part with discretion, and parts to the whole with prudence: always contriving to preserve in front a breadth and majesty, which suffers no intrusion of slender streaks, nor false lights, nor favourite herbage; to distinguish which, objects of greater importance must be sacrificed. This does by no means

prohibit faithful representation of great variety of articles; some of which may properly engage our attention.

In treating Rocks, or barren objects, the painter must endeavour by artful management of his light and shade, to render them accordant with the other parts of his composition: they must be boldly and truly coloured with warmth and spirit. Rocks are of various natures, according to the strata which compose them; a happy imitation of which adds greatly to verisimilitude: the mosses which grow upon them, the injuries they have received from time, the shrubs which accompany them, and other particulars, tend greatly to qualify their barren aspect, and to render them pleasing, though at first they seem little calculated to please. Parts of rocks removed further into a composition, must be blended, and only their protuberances be distinguished.

A CHAMPAIGN open country, which has nothing particular to attract notice, is by no means a barren object in a picture; as it affords such scope for the effect of light, and degradation of distances, that if there be other assisting circumstances in the surrounding objects to diversify the picture, it possesses a contrast capable

pable of the greatest utility, and can scarce fail of a characteristic grandeur.

HIGH ROADS, though seemingly void of ornament whereby to become interesting, yet sometimes by the contrast of their colour with the verdant plain; by their broken, but not scattered parts; by the idea of population, and utility connected with them; and, above all, by the opportunity they offer for lively movement and decoration, figures, passengers, animals, &c. they become most entertaining and captivating objects.

HERBAGE, as it composes the colours of turf or meadows, should always be carefully expressed by its general tints; but if it permit variation of tint, indicating distinction without opposition, this circumstance is highly favourable. If PLANTS of any remarkable nature, or form, occur, especially if in the fore-ground, they may exact, without offence, a more scrupulous veracity of representation.

BUILDINGS are objects of great attention, and contribute much to enrich a composition: their forms vary infinitely, according to the uses for which they are designed, and to the caprice of their erectors, or occupiers; hence they afford unbounded liberty for lights and shadows;

shadows; for projections and recessions; for smaller parts, or for larger divisions.

Buildings contribute very much to discriminate the styles we have already remarked; they are objects of our perpetual inspection in nature, and therefore we become capable of determining upon them instantly when offered by art. Moreover, as the ranks of mankind, their riches and opulence, or their poverty and want, are no where more apparent, or more clearly indicated, than in their buildings; they become, as it were, a kind of index, which at once relates the circumstances of their owners, their abilities, and their dispositions.

The Rural style delights in cottages and barns, in hamlets and villages; nor thinks the meanest erections beneath its regard, not even those deserted and almost ruined buildings, whose tottering walls, and falling roofs, produce a variegated richness in a painter's eye, however they may infer poverty in their owners. These exhibit effects—in the ravages of time on their materials; in the greenness of the mortar, occasioned by moss; in the discolours of their beams, and their irregular forms; all contrasted by ridges of red tiles, and scattered distributions of brick-work, which no modern building can pretend to: nor is it,  
thank

thank Heaven ! in this country every day to be met with.

The Historical style seeks in superb magnificence for objects congenial to its sentiments; the arched roof, the long-drawn aisle, the pomp of pillars and orders, or the monuments of superstitious veneration; the painted window, the decorated frieze, the enriched cornice, the elevated arch, and the supporting buttress. But in composing architectural ruins, let great care be paid to their correctness; that parts remaining entire correspond to those thrown down: let not a spectator be shocked by Corinthian columns, or capitals, fallen from Doric buildings; nor be suffered to inquire, to what invisible fabric such, or such a fragment belongs. On this rock many artists have split; nor less fatal is that thoughtless inattention which places marble columns on foundations of reeds, and represents a whole arch consisting of many stones, supported on one side only, and that by a single pillar.

WATER contributes very much to the apparent truth of a picture, by its splendour, and especially by its reflections; they are in nature a kind of picture, and we know it; we consider them as such: we therefore expect them to be  
so

so wherever we see them, and come ready prepared to be deceived: A deception which completely takes place, if they are judiciously introduced, and happily treated. Like the feigned play in *HAMLET*, which realizes the main action vastly; so these feigned pictures, by their application and relation, give to what is meant for reality an almost magical veracity and existence.

By the variety of forms of which water is capable, it diversifies the scenery of a picture more than any other ingredient whatever; whether compressed by a rocky channel, it foams into a cataract, or slowly gliding along its capacious bed; whether opening in the wide-extended river, or contracted in the humble brook, it is still various, still pleasing, and entertaining. But let its reflections be true and genuine; let them be natural and just; touched with harmony, yet distinctly; with spirit, but likewise delicacy. And since water is in its nature the freest of all objects, since it always seeks its level, let it not be otherwise represented; nor situated where the winding element would refuse to be confined.

In composing his Landscape, the Artist may, and indeed must, have some design to render it characteristic; either serious, or cheerful,  
noble,

noble, or pleasing; but it often happens, that FIGURES are the last ingredients thought of, and rather made afterwards to fill up vacancies in the picture, than correctly suited to it, and forming part of it. There are indeed many compositions, which require merely simple figures; whose employment is of little consequence, such as, perhaps, passengers, or figures walking, reposing, &c. and these may be suffered, occasionally; but to be always content with them, is to stop very far short of that perfection which is in our power, and of which this part of painting is capable: why should not figures be so predetermined and adjusted in the first conception of a Landscape; that they may suitably fill up their places as part of the same whole? Let not their difficulty be urged in excuse; a little thought, and some small trouble to study them (suppose from Nature) would liberate us from those herald-like drawn figures, which disgrace the abilities of the Landscape painter. I would have them neither insipid nor indifferent; let them contribute to raise an interest in the spectator, whether by relating some familiar history, or some distinguishing incident, appropriate to the subject.

Great care must be taken to proportion figures to a Landscape; if too large, they diminish other parts of the piece; if too small,

being always regarded as a kind of scale, the Landscape becomes gigantic. It is more usual, and less hurtful, to represent them small, rather than large; but let them always be touched with vigour and spirit; placed where they may seem of most consequence, as well as most *a propos*; and be coloured with vivacity, but without disturbing the general union of the piece. Since figures, by their variety, their movement, and bustle, are naturally attended to with pleasure, it is not advisable to be sparing of them, if the subject permits their introduction.

A Landscape without TREES, is like a river without water: but trees are in their natures so various, that I beg your indulgence, LADIES and GENTLEMEN, while I request your candid attention to a little enlargement in some particulars.

Trees are among the greatest ornaments of Landscape, because, by their variety of species, their verdure, and freshness, and especially by their lightness, and agitation, they impart great life and motion to a composition.

The various species of trees demand much attention, and very intimate acquaintance: for how shall an artist describe by his pencil to the view of others that particular species of which he is himself ignorant? and to suppose that random attempts may transmit equal beauties as cultivated

cultivated skill, is to suppose the weeds of a desert equal to the vegetation of a well-attended garden.

The spectator, who himself understands their characters and aspects, should be at no loss to determine between an oak or an elm; a fir, or a poplar; an apple-tree, or a weeping willow. The particular proportions, manner of branching, and of leaving, whether compact or light, whether determinate and, as it were, heavy, or agile and volatile; add to this—the colour of their leaves, above, below, of the branches, of the bark, of the mosses which surround the bark; the plants which usually grow at the bottom of the stem; the situation such trees delight in; whether open and airy, or closer and more confined; whether by the water-side, or on the thirsty heath: all these particulars should be familiar to that artist who wishes to rival the great names of those who by such attentions have risen to excellence.

Beside the peculiarity of appearance which belongs to each species of trees, there are also many differences in trees of the same species; whether healthy and strong, or diseased and infirm; also, whether young or old.

Young trees are generally distinguished by long and thin branches, aspiring upwards, and

not very numerous, but well clothed with leaves, well spread, vigorous, and well formed. The branches of old trees, on the contrary, are short, thick, close, and numerous; but their spread of leaves unequal, and their general aspect thin.

The barks of trees also contribute greatly to their character, and must be attended to; in general, older barks are fuller of crevices, &c. which are also deeper in aged than in younger trees. As to the leaves of trees in general, the broadest and largest are at bottom; those at top begin soonest to decay and wither, becoming, as it were, sun-burnt; but the leaves of plants which are but little raised above the earth generally begin their decay with the lowest.

A few hints on the various species of trees usually introduced in Landscape, may contribute to a better understanding of their respective characters.

The OAK is an object very beautiful, noble, and venerable in its aspect; and, if appearance might justify such distinction, entitled to all the (idolatrous) honours once lavished upon it. Its stem and branches are grand, and its colour firm and stable. The oak of the forest differs from that in a hedge; being abundantly more stately and romantic, and free from diverging suckers  
which

which give somewhat of commonness, perhaps vulgarity, to those in hedges, even while they increase the general verdure.

The CHESTNUT is rather a heavy tree, yet has more majesty than many which are preferred before it; either for the canvass, or the park: and is very distinct when in blossom.

The WILLOW exhibits a very agreeable and stately appearance when perfect; it possesses also a pleasing variety in the lengthened shape of its leaf, and by its contrast to other trees in this instance, often produces a happy effect; which the water, on whose banks it chooses to flourish, increases by reflection. Willows cut and lopped are no specimens of this tree.

The ELM is a stately tree, tall, but does not very much extend its foliage.

FIRS and PINES contribute greatly to variety; their forms generally contrast well with surrounding objects; they are often happy and expressive in scenes where wildness and romanticness is necessary: for in such stations they flourish.

The CEDAR may perhaps be the most majestic of all trees when in perfection; as on Mount Lebanon, where are some amazing large, and very ancient; but in England we have little or no opportunity of introducing it into pictures. It is extant among us, but is rare.

The

The **ASH** is a fine sprightly tree, light in its leaving, agitated by every wind, and displaying great difference of colour in the upper and under surfaces of its leaves: its branches are slender and elegant, and its bark brilliant.

The **BEECH** is a tall and majestic tree, and, together with the **BIRCH**, has a beautiful stem, and a graceful character in its branches and foliage.

These trees, and others which might be named, receive peculiar beauties when happily contrasted, or grouped; their various forms and colours, their various manners, may I so say, contribute much to general effect. But it is notorious, that the various seasons of the year produce great difference and dissimilarity in trees of all kinds, and of which, every eye, even the uninformed, can judge. Young leaves and shoots have a very distinguishing yellowness, which heightens their green; this diminishes as they advance toward the vigour of their maturity, which having passed, they become reddish or brownish, especially in parts most exposed; afterwards they gradually wither and decay, till the sap, retiring from the stem to the root, leaves them without moisture or nourishment, and they become totally divested of their former verdure.

That the **SEASONS** should be marked distinctly, and without confusion, in order to be  
at

at first sight clear to the spectator, is highly requisite. What then are the distinguishing peculiarities of the seasons? Spring is wet and humid, the air is replete with vapours, and the clouds, impelled by rapid winds, drop their liquid riches while passing over us. The flowers shoot with vivacity and sprightliness, and whatever is of short duration comes quickly to maturity; but the trees are rather preparing for their future grandeur, than already possessed of it, and their verdure is rather promising than perfect. Summer advances and completes what Spring had commenced, and by its fervour and warmth consumes the superfluous moisture of the atmosphere: Summer, therefore, is dry, the air clearer, the whole picture more mature and firm. Autumn is characterized by symptoms of decay; the evident change in the verdure of the groves, now fast approaching brownness, their apparent progress toward winterly nakedness, together with the ripeness of fruits, corn, &c. clearly mark this season. The severity of the weather, the rattling storm, or the fleecy snow, render Winter obvious at a glance.

The various employments of mankind, according to the exigencies of the seasons, contribute greatly to mark the time of year, and to furnish accompanying figures; since we do not reap in Winter, nor scate in Autumn.

It

It appears clearly from these hints, that strict attention to Nature, and intimate acquaintance with natural causes and principles, are indispensable to that Artist who wishes to excel in the study of Landscape.

I must not close this Lecture without somewhat elucidating the principles of VIEWS; which, I need not remark, may contain not only the particulars just treated of, but also claim a certain fidelity and resemblance, without which they ill deserve their appellation. But this fidelity does not always bind the Artist to a minute punctuality of likeness: we do not expect in his trees that every branch should be precisely a portrait, though we will not allow him to change the kind of tree, or to substitute an oak for a holly: nor do we expect that his buildings should be equally minute as an architect ought to shew them, or that they should afford geometrical measurement; but it is, nevertheless, forbidden him to place windows where there are none, or to vary the heights of stories by a departure from truth.

What licences a view requires, must be introduced with discretion; a very remarkable object must not be omitted, because the trees around conceal it, if it be of a nature that permits a little elevation, or if the trees may be a little thinned, or opened in that place. A  
canal

canal may be represented somewhat broader than it really is, if it forms an agreeable object, and is otherwise in danger of being overlooked. Whatever may contribute to the expression of the piece, to the purpose intended by a view of that particular place, and to the ideas connected with such a view, must be admitted: on this principle, that their admission is a less evil than their absence. Or, if the objects introduced are likely, after a few years, to be more picturesque, better grouped, or in superior condition, the artist will do well to look forward, and to give them advantages perhaps not altogether justified by their present appearance. An artist would be blameable who did not choose the most agreeable aspect of his object, in which it offers the greatest variety of forms, and is most picturesque; he may also choose to see it from the best station and distance, and take every method of setting it off. Nor let him be sparing of accidents of light and shadow; for these being too numerous to be limited by rules, become arbitrary, and no one will call him to account for a happy effect produced by their means: but I repeat, that this requires discretion, and should not be *forced* on the composition; on the contrary the

artifice must be so concealed, that the whole, and every part, may appear extremely natural.

SEA VIEWS come under the same principles as Landscape in general: character must here supply the place of that variety of objects and distances which Land Views afford; and as the objects are not so numerous, the truth and nature of what are introduced should make amends for their smaller numbers. The clouds should be kept rather lighter than in a Landscape; especially when there is little opposition to be procured by objects around them, and because they naturally include a great proportion of the picture. The water should be touched with spirit; the lights on the risings of the waves distinctly and justly treated; and the free, unconstrained play of the liquid element be carefully expressed. The offscape requires great attention; and to impart ideas of interval, and variety of distance, is very important, and, indeed, indispensable to happy success.

These principles are general; they are of constant and perpetual application and use, and I am persuaded, will be found coincident with the indications and effects of nature: to imitate which, in their happiest combinations, with perspicuity and veracity, while the noblest employment

ment of taste and genius, is their highest commendation and applause.

As I am well aware, that Landscape is a very favourite study with others beside professed Artists, and among those who pursue it with ardour, I may include many of the present company, I have traced its parts in those distinctions and divisions which I thought most likely to promote a competent acquaintance with the subject. Undoubtedly it includes extensive variety, and requires both foresight and constancy to insure success:—but, let this consideration encourage us:—Nature is perpetually offering her assistance; we cannot walk abroad but she tempts our study, she endeavours to excite our regard, to attract our attentive inquiry, and to stimulate our imitation: The observation necessary to this, interferes with no other pursuit, prevents no relaxation, or diversion, but accompanied by health and pleasure, by delight and satisfaction, study and enjoyment go hand in hand.

As travellers returned from some extensive excursion receive both pleasure and profit by relating their observations and adventures, by reflecting on the incidents and occurrences of their progress, and, after the journey, re-

survey their route in contemplative satisfaction; so we, who have now completed no ordinary expedition, but have traversed wherever inclined, have inspected prospects not visible to all, but presented only to the enlightened eye of science, who, in the course of these Lectures, have spurned confinement to earth, nor left the celestial regions unvisited, who, in our survey of this terrestrial ball, have expatiated on circumstances calculated to interest us, whether in the verdant grove, or the fruitful field; whether in the extensive forest, or the populous metropolis; whether in the works of Nature, or the contrivances of Art, let us now review our path, recollect our course, and congratulate ourselves, if we have enlarged our knowledge, relaxed our minds, or increased our enjoyments.

First, as appeared our duty, we surveyed OURSELVES; we investigated some of the principles of the human mind—Genius, Imagination, Sensibility, Judgment; we inquired how Beauty operates upon these—by proportion, by variety, by fitness: qualities no where more apparent than in the human frame—in its parts, in its motions, in its propensities, in its progressive ages; however varied by Character, or suspended by Expression. Then we attended to our most noble endowment Sight—in its properties

properties, its extent, its sensations, its deceptions—arising—from confirmed preconception, from the circumambient medium, from the nature of the visual rays; these we applied to purposes of Art—in the representation of objects, of shadows, natural and artificial, their accidents, their degradations, their reflexions. As objects of investigation we selected the Dwellings of Mankind, observed their progress, their magnitude, their application, their principles, their component parts, their variety, their elegance—arising—from regularity, from distribution, from decoration; their convenience, their salubrity; augmented by extensive prospects—combining grandeur, rusticity, variety, motion; in aerial effects, in objects at hand, afar off; whether bold, or delicate, contrasted, or correspondent: What remains, but that, with our original parent, we venerate the universal Author?

These are thy glorious works, Parent of good,  
Almighty, thine this universal frame,  
Thus wond'rous fair; thyself how wond'rous then!  
To us invisible, or dimly seen  
In these thy lowest works, yet these declare,  
Thy goodness beyond thought, and power divine.

End of the second series of LECTURES.

LIST

[ 322 ]

**LIST OF THE PLATES**  
**BELONGING TO THE LECTURE ON**  
**LANDSCAPE.**

Published in No. XVII. *Principles of Landscape*, a double plate, containing leaves, sketches of trees, branches, &c. Designed to be copied repeatedly with a pen, till the student has attained a facility of outlining such objects, forms, &c. The more familiar these simple principles become the better.

In No. XVIII. Two plates, containing herbage, branches of trees, &c. of the same use as the foregoing.

In No. XVIII. One plate, an advance on the above.

In No. XVIII. *Principles of Landscape*, a light tree, agitated by the wind.

In No. XXIII. *Principles of Landscape*, light trees agitated.

In No. XXIII. *Principles of Landscape*, two small sketches, being parts of compositions.

In No. XXIV. *Principles of Landscape*, a group of trees on a bank.

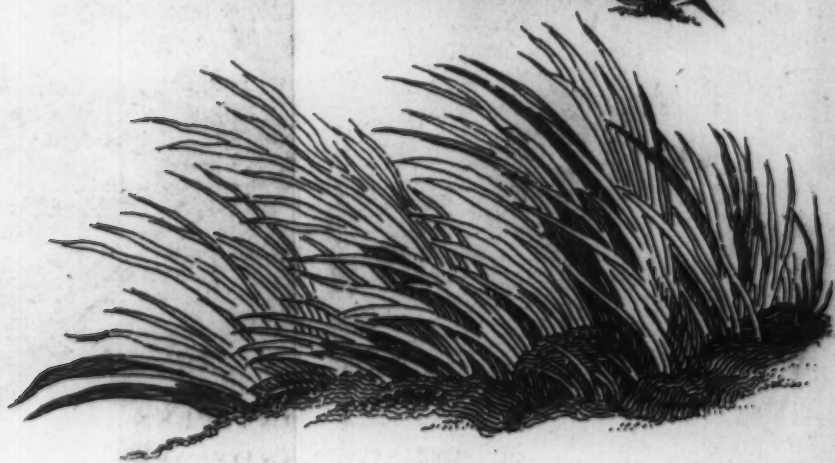
In No. XXIV. *Principles of Landscape*, trees grouped close together with huts, &c. by the water side.

In

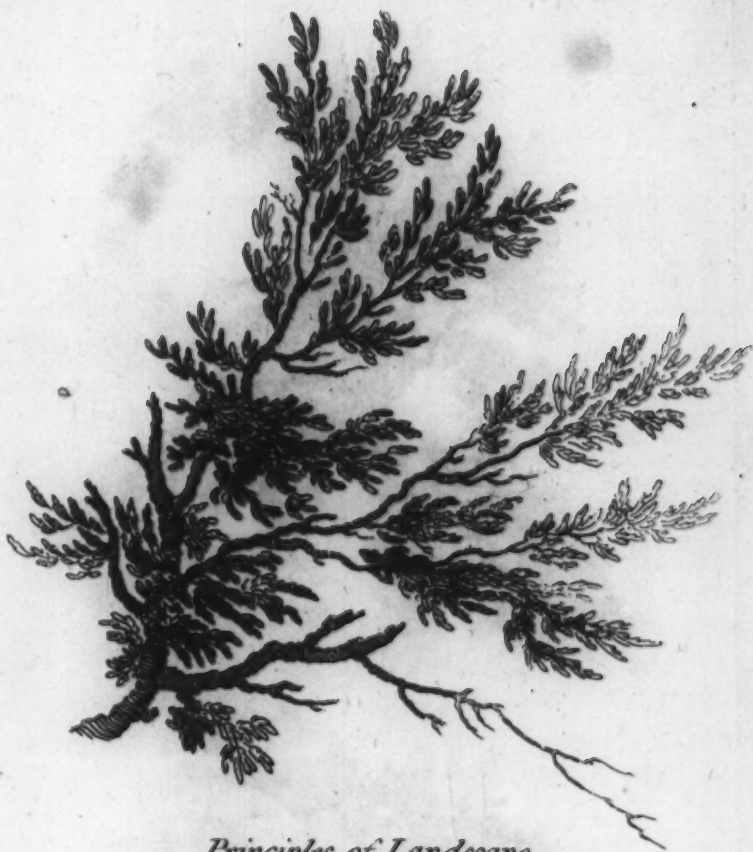




PRINCIPLES  
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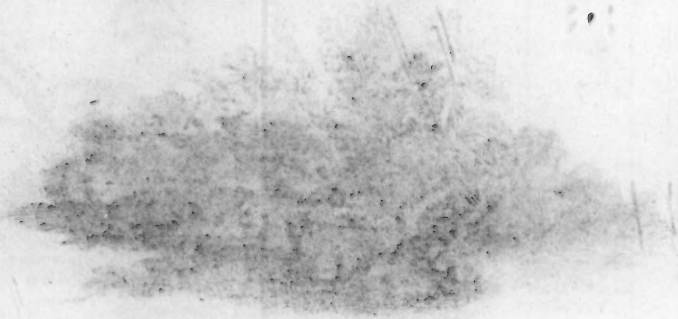


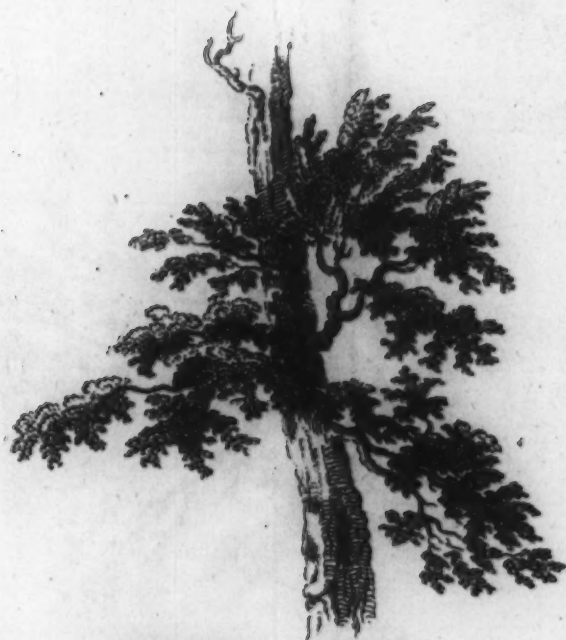




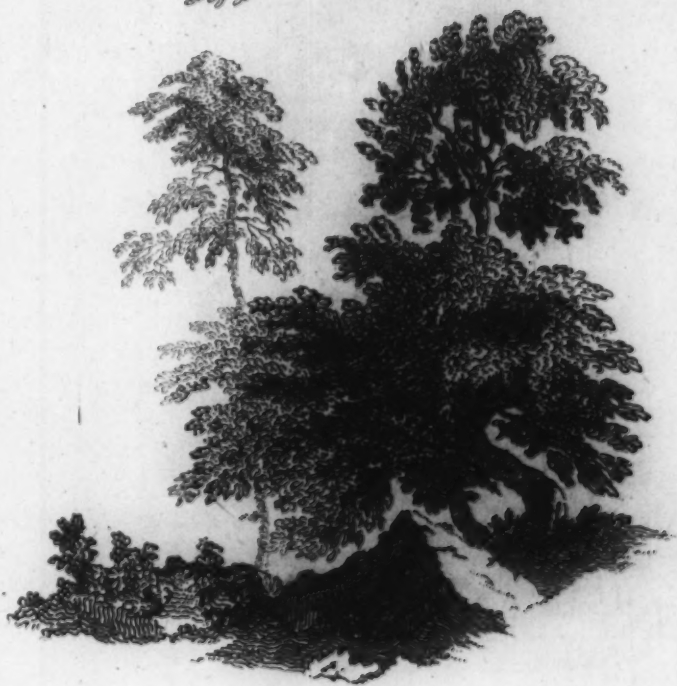
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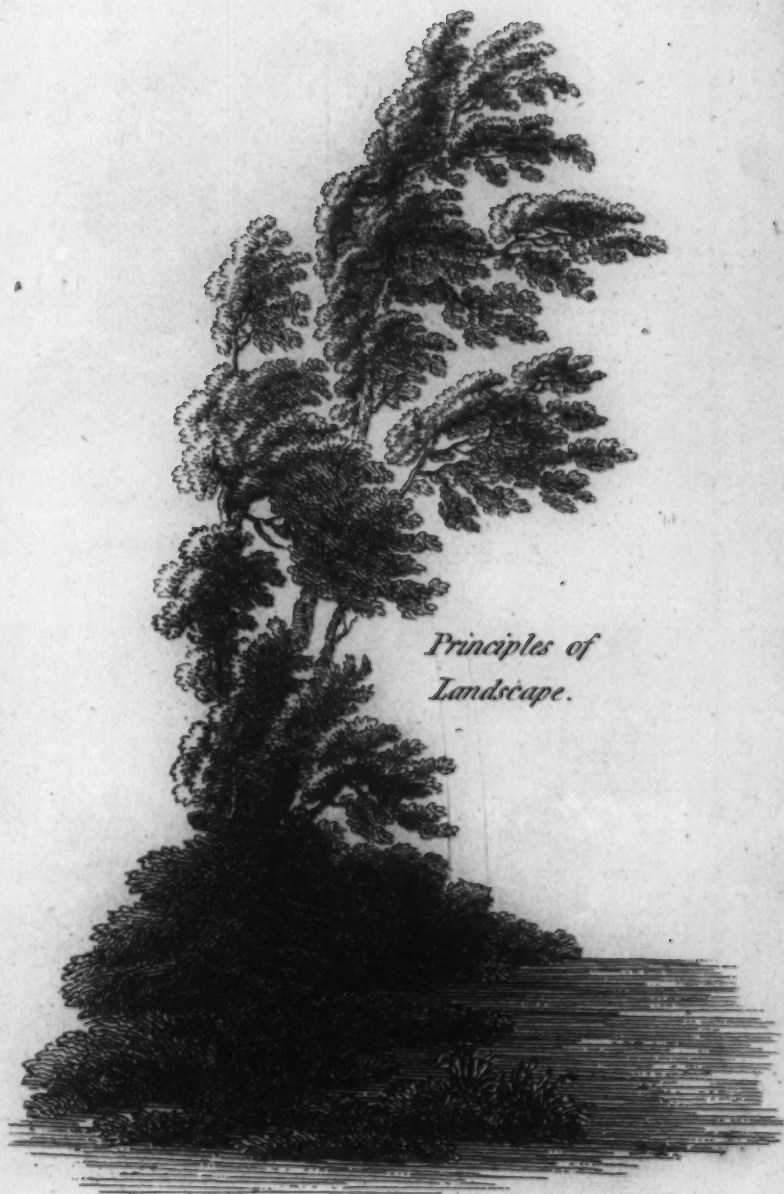












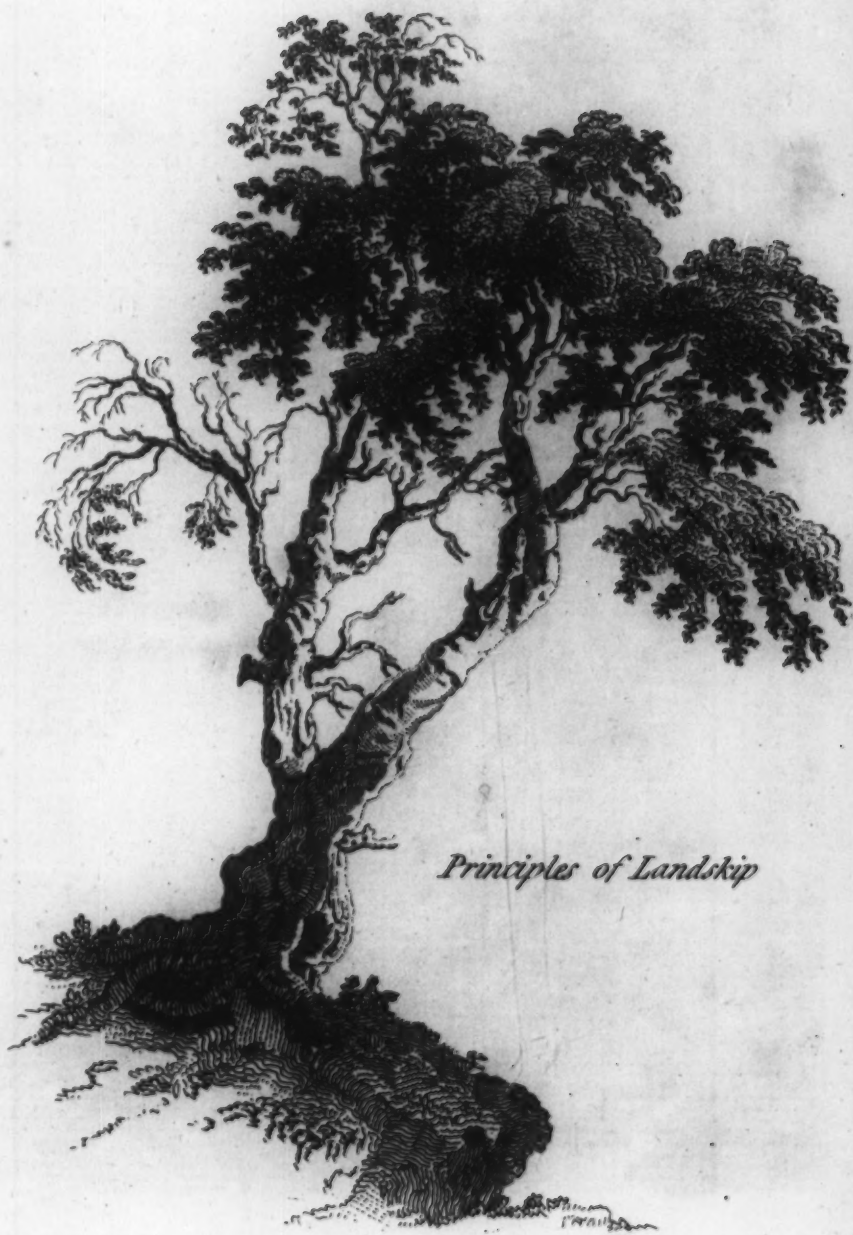




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*Principles of Landskip*

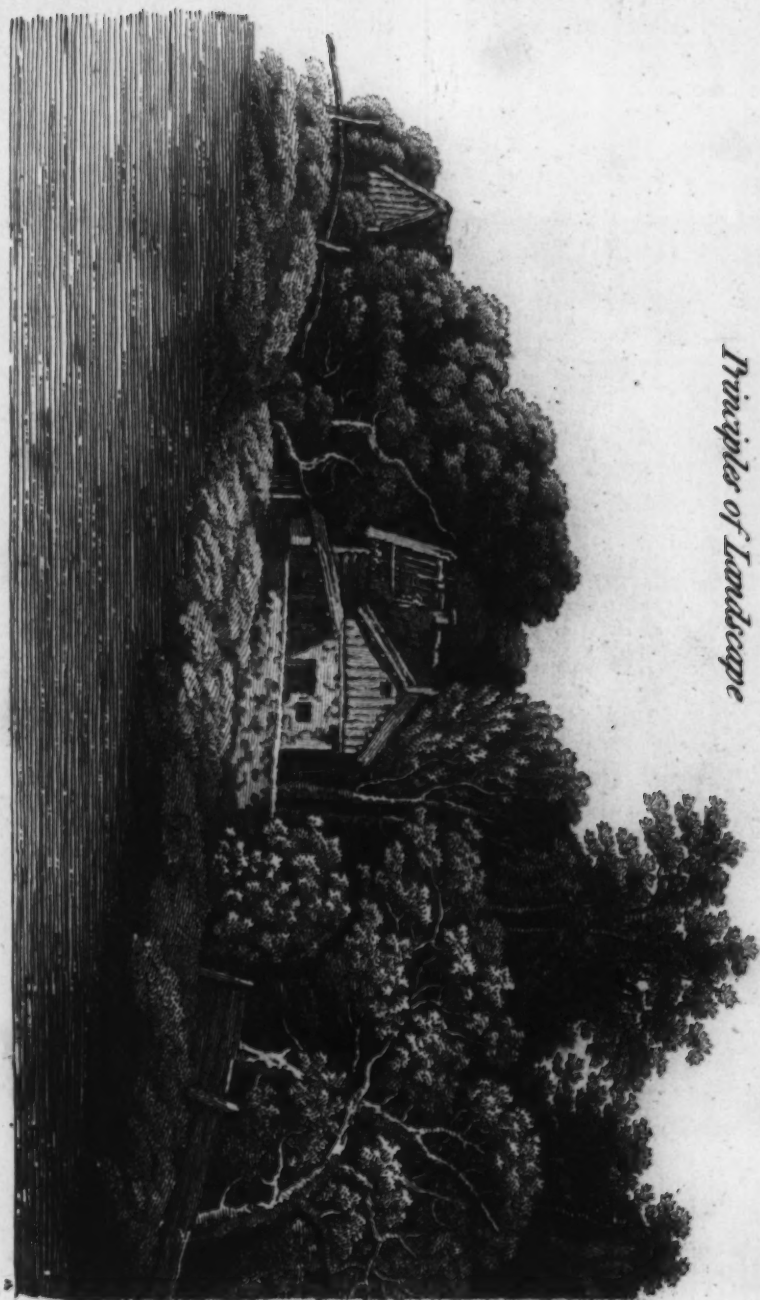


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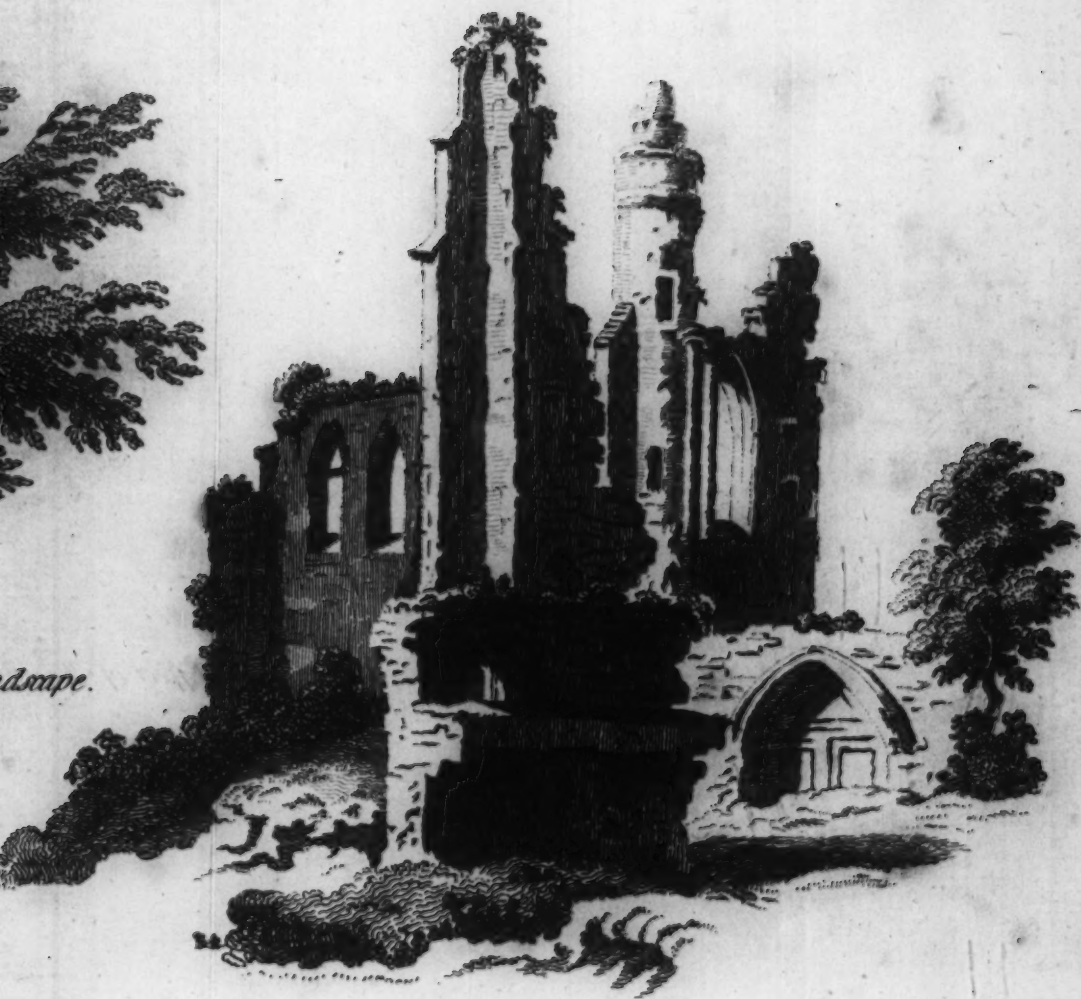






*Effect of Wind*

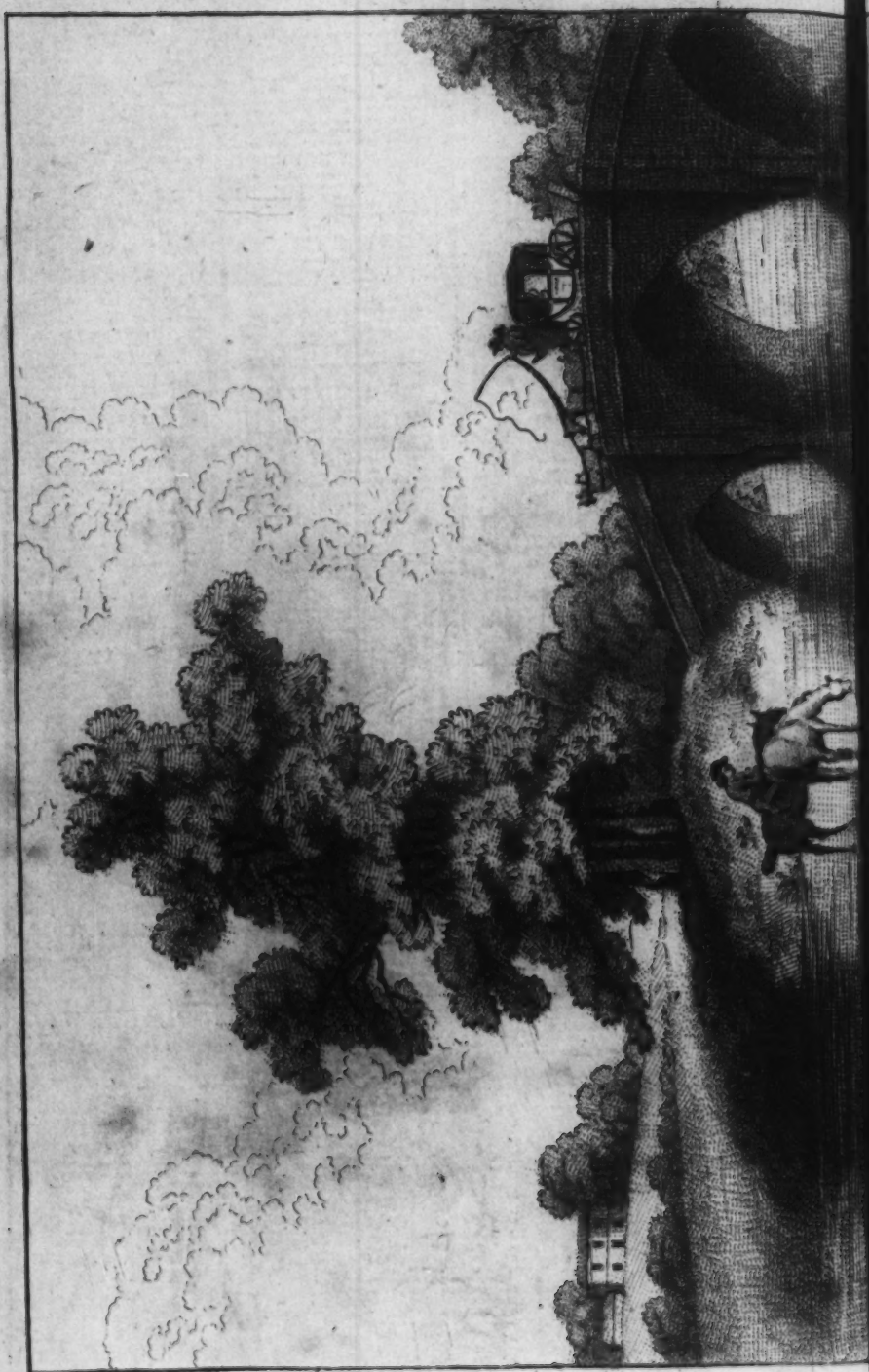
*Principles of Landscape*

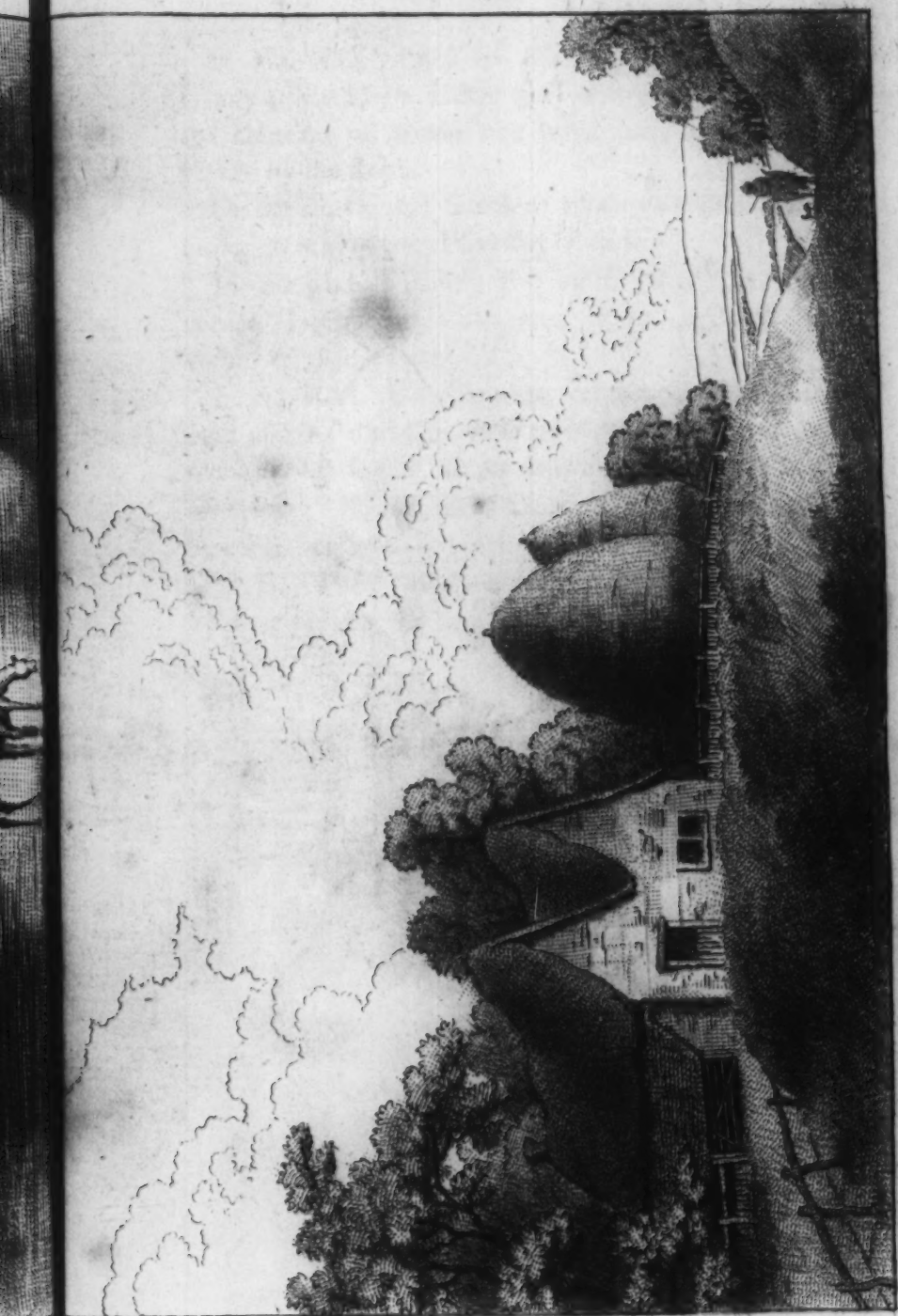


*Ampe.*











In No. XIX. *Effect of Wind.* Two trees very greatly agitated by a violent gulf of wind; the leaves and branches all blown one way, bent, and almost broken by the storm.

On the same plate; sketch of a ruined cloister, exhibiting great variety and diversity of parts.

In the same Number, two buildings of the same nature, interspersed with trees, which augment the variety of their effects.

In No. XXI. A double plate, containing two studies from nature; tinted in those parts which ought to be touched with Indian ink previous to colours being laid on them. The outlines of the clouds, &c. should not be hard, but light.

N. B. These two plates are examples for Indian ink by merely tinting the sky.



To the BINDER.

The PLATES belonging to the LECTURES on PERSPECTIVE are to be placed as follows: viz.

Plates I. II. III. IV. from page 35 to page 41.

Plates V. VI. VII. VIII. IX. X. from page 53 to page 64.

Plates XI. XII. XIII. XIV. XV. XVI. from page 85 to page 96.

The PLATES belonging to the LECTURES on ARCHITECTURE are to be placed as follows, viz.

Plates No. I. to No. X. from page 141 to page 149.

Plates XI. to XXXIV. from page 181 to page 196.

The PLATES belonging to the LECTURE on LANDSCAPE are to be placed at page 226 according to the order there mentioned.

ERRATA in the LECTURES, in some Copies.

p. 53. l. 6. for H I *read* A, 1.—p. 162. l. 17. for form *read* from.—p. 181. l. last but two, for Atrlostyle *read* Areostyle.—p. 181. l. 2. the same mistake repeated.

IN THE MISCELLANIES.

p. 46. l. 13. for where, as *read* whereas.—p. 182. l. for Earl of AYLESBURY *read* AYLESFORD.



